

ECONOMIC INTELLIGENCE REPORT

POSTWAR INVESTMENTS IN SOVIET AGRICULTURE



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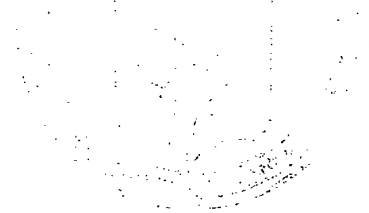
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(ORR Project 14.442)

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POSTWAR INVESTMENTS IN SOVIET AGRICULTURE*

Summary

Historically, capital investments in Soviet agriculture were characterized by (1) the relatively small share which they constituted of total national economic investments; (2) the residual priorities which they enjoyed, as contrasted with investments in heavy industry and defense; (3) the policy of extensive investments in the state sector in new basic capital (such as tractors) to the relative neglect of ancillary investments to intensify the efficiency of the existing basic capital (such as tractor repair facilities); and (4) the very low ratio of nonproductive investments, notably in housing. Under Malenkov's regime it appeared that economic policy favored the more intensive types of agricultural investments. The adoption of the "new lands" program, however, and the eclipse of Malenkov by Khrushchev indicate at least a partial return to the traditional extensive pattern of investment -- for example, in the exploitation of "new lands" at the expense of increasing productivity in the established agricultural areas. Although agricultural investments probably are holding a very slightly increased share in total capital investments, all the main historical characteristics of Soviet agricultural investment policy remain substantially intact in the post-Stalin period.

In their administration, state agricultural investments are subject to an extraordinary measure both of centralized planning and of dependence on the state budget as a source of financing. The removal of subsidies from sovkhozes (state farms) in 1954 and the recent agitation for changing the financial regime of the machine tractor stations (MTS's) suggest, however, the difficult long-run aim of administering state agricultural investments as much as possible like state industrial investments. Kolkhoz (collective farm) capital investments, on the other hand -- except for limited state aid in long-term credits -- are financed from internal funds and are not an integral part of the national economic plan. The kolkhozes enjoy, therefore, a relatively wider area of decentralized investment choice, a circumstance unchanged by agricultural policy since Stalin's death.

* The estimates and conclusions contained in this report represent the best judgment of ORR as of 1 November 1955.

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The published data on the capital investments and/or capital stocks of the state agricultural and kolkhoz sectors are not directly comparable, because of the different methods by which they are valued. Kolkhoz investments are based on retail prices, whereas state agricultural investments are in terms of wholesale prices. Moreover, large investments in kind, gaps in statistical reporting, and the inclusion of capital repairs and some working capital accounts in the kolkhoz investment data make it difficult, if not impossible, to determine the "real" value of kolkhoz capital investments or fixed assets. Because of a greater weight in their composition of short-lived farm assets, particularly livestock, kolkhoz capital stocks grow at a slower rate per unit of investment than state agricultural capital stocks.

Realized capital investment expenditures in state agriculture in the Fourth and Fifth Five Year Plans, except for 1952 and 1953, have shown steady increases from year to year. State agricultural capital investments in the Fourth Five Year Plan (1946-50) are estimated at 31 billion rubles, whereas for the first 4 years of the Fifth Five Year Plan (1951-55) they are estimated at 56 billion rubles. In the 4-year period (1950-53) following the substantial completion of postwar industrial reconstruction, state agricultural investments tended to average about 10 percent of total state investments in the national economy. Agriculture's share declined in 1953 to slightly more than 8 percent but rose to an estimated 12 percent in 1954. From 1946 through 1952, state agricultural investments were notable for the high shares devoted to MTS machinery and to sovkhoses, to the relative neglect -- despite plan specifications and public pronouncements -- of expenditures actually directed to grandiose projects of general agricultural significance.

Kolkhoz capital investments during the Fifth Five Year Plan have shown significant increases over those made during the Fourth Five Year Plan. Total kolkhoz investments in the Fourth Five Year Plan were 59 billion rubles, whereas in the first 3 years (1951-53) of the Fifth Five Year Plan they were nearly 50 billion rubles. In the Fourth Five Year Plan, investments in kind constituted 43 percent of indivisible fund investments, but from 1951 through 1953 they averaged only 31 percent. Long-term credits, on the other hand, have progressively been occupying an increasing share in total kolkhoz money capital outlays. In the Fourth Five Year Plan, long-term credits were 27 percent of kolkhoz

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indivisible fund monetary expenditures, and in the first 3 years of the Fifth Five Year Plan they were 30 percent. Available data indicate that indivisible fund monetary expenditures average nearly 20 percent of kolkhoz monetary incomes. In the Fourth Five Year Plan, livestock investments represented about 21 percent of total kolkhoz indivisible fund investments.

Whereas kolkhoz investments are directly dependent upon the level of kolkhoz monetary income, state agricultural investments appear to be a function of the over-all volume of capital investments in the national economy. Despite the difficulty of comparing investments based on different ruble values and on different coverage, it seems possible to suggest that by the Fifth Five Year Plan state agricultural investments, in comparable prices, had actually exceeded kolkhoz investments.

State agricultural capital stocks have accumulated more rapidly in the postwar period than have kolkhoz capital stocks. At the same time a greater share of state investments have become net additions to existing fixed assets. For those reasons it is thought that by the midpoint in the Fifth Five Year Plan the value of state agricultural capital stocks had exceeded that of the kolkhozes.

In regard to investment intentions and prospects, this report concludes that the level of agricultural investments will remain high in the foreseeable future. No substantial modification is likely in the institutional framework. Superimposing a rapid increase in population plus the productivity stimulus of a rising living standard on a limited resource base implies for the Soviet leadership that there will be a persistent and compelling need for high levels of agricultural capital outlays. Agricultural investments, in all probability, will continue to grow in the near future at a rate more or less dependent on the growth of the economy as a whole and not substantially more rapid than the rate of growth for total investments in the national economy. The present agricultural programs associated with Khrushchev give every evidence of being an attempt to consolidate the kolkhoz system and further improve its viability.

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I. Types of Investments in Soviet Agriculture.

In the forced-industrialization era of the Five Year Plans, Soviet planners have allocated shares of national consumption and capital resources to agriculture on a residual priority basis. Recently published summary data underscore the point. Whereas the sum of state capital investments (in current rubles) from 1929 to 1952 in heavy industry and transport amounted to 831 billion rubles, investments in state agriculture (chiefly machine tractor stations /MTS's/ and state farms /sovkhozes/) came to 94 billion rubles. 1/* Capital directed to agriculture, moreover, in largest part has been held to extensive investments in basic capital, like tractors, to the great neglect of ancillary investments, such as repair facilities for tractors, that would intensify the efficiency of the basic capital so created. For purposes of aggregative quantitative analysis, it therefore can be argued that precise estimates of Soviet agricultural investments are not crucial in assessing over-all growth rates or in making international comparisons. The addition of kolkhoz (collective farm) investments to the state agricultural investment totals does not seriously vitiate the argument. In any event, precise estimates of Soviet agricultural investments are not available. No reliable and complete postwar series in adjusted current prices, let alone constant prices, has yet been constructed for them by Western analysts.

Unfortunately, this report will not fill the need for an adjusted or a constant-prices series. What is attempted here is to assemble only the postwar investments in current rubles for the two sectors of socialist agriculture, the sovkhoz and the kolkhoz. A modest degree of success will have been achieved if, by a description of the economic, financial, and administrative factors, the difficulties en route to more refined estimates are clearly posted. Actually, the construction of adjusted-current or constant-prices series for Soviet agriculture investments must rely on research, analysis, and data, mainly on price differentials, that go beyond the scope of this report. With the dearth of published data, the task is sure to be a long-term one.

Their relative size apart, it is not likely to be argued that agricultural investments are not important for the growth and prospects of Soviet agriculture. To the extent that there is interdependence between

* For serially numbered source references, see Appendix E. A selected bibliography used in the preparation of this report is given in Appendix D.

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sectors, the development of the economy as a whole is partially a function of agricultural investments. The study of agricultural investments further reflects state economic policies and provides insights into the economic capabilities and designs of the Soviet government. There is another consideration as well. The findings presented below on the financing of capital investments in the state and collective sectors of Soviet agriculture point to an administrative and managerial effort, in the interests of state control, well out of proportion to the ruble value of the capital goods involved. The peasant's chronic underfulfillment of the agricultural production schedules has been neatly paralleled by the state's inability itself to fulfill and to get the peasant to fulfill agricultural investment commitments.

Definitions of what constitute agricultural capital investments and fixed assets and how to value them present vexing theoretical problems in the framework of any economic system. Are seed or perennial plants best treated as working or fixed capital items? Should all or only some portion of livestock, for example, breeding stock, be considered a fixed asset? How does one measure inputs in kind, like the farm's own labor in construction or in the manufacture of construction materials? For no national economy is there adequate reporting on most of these items, let alone widespread agreement on how to value them. In analyzing Western agricultural economies, the economist is relatively free, therefore, to devise his own theoretical classifications and methods of deriving estimates. In the USSR, on the other hand, since the planned economy is a state and communally owned economy, the definitions of capital items and their classification are first of all matters of established administrative practice.

Published Soviet figures in agriculture and elsewhere accord in coverage with the theoretical premises of the Soviet Marxian system of national accounts or with the administrative divisions of the economic apparatus. Hence, if the published Soviet data are to be understood, the importance of studying the administrative procedures within the economy is apparent. Only when the meaning of the statistical categories has been determined can the figures be used in the computation of aggregates not corresponding to the Soviet system of national accounts (say, in the computation of the Western as opposed to the Soviet definition of national income). 2/

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The given definitions, however, present but one side of the problem. As will be shown, most of the agricultural investment information, especially in the kolkhoz sector, is subject to the imperfections of incomplete reporting, mixed price systems, and the absence of depreciation allowances. Although it has been found impossible to make adjusted estimates in this report accounting for these imperfections, it is important to point them out. For instance, the difference in coverage between a state agricultural investment ruble and a reported kolkhoz investment ruble precludes simply adding sovkhoz and kolkhoz agricultural investments together in computing total agricultural investments.

Since the basic statistical research on Soviet agricultural investments and capital formation in the prewar period has already been done, ^{3/} it is unnecessary to recapitulate it here, and the estimates herein focus on the postwar period. At the same time, less is generally known about the content of the capital accounts in Soviet agriculture than about the administrative and statistical systems by which they are managed. An attempt is made, therefore, to describe the institutional setting within which the agricultural investment and capital stock statistics have reality. On the whole, the fundamental features of the collective farm system established from 1929 have remained unchanged. Perhaps the most important changes ever undertaken are occurring in the post-Stalin period. Although the new policies may prove important for the economic potential of the Soviet agricultural system, they are largely procedural and intended to strengthen the system rather than to modify it.

In the field of agricultural statistics, the hazards in making estimates are great. As additions to the already published data are released by the Soviet government, many of the estimates in this report probably will have to be discarded. That is why the more important contribution in this report may well be the description and analysis of the Soviet categories of capital in agriculture and the ways in which they are administered. If more statistical data on postwar agricultural investments are published, it is hoped that this report will serve to aid in their interpretation.

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The present section will first discuss the Soviet classification of agricultural capital investments. After a brief description of Soviet agricultural institutions, there will follow an analysis of the sources, types, and manner of financing sovkhoz and kolkhoz investments, respectively. Finally, general conclusions will be drawn concerning the control and valuation of agricultural investments. The second chapter will attempt to achieve essentially the same task of definition with respect to agricultural capital stocks and capital formation. The third and last chapter will summarize on a quantitative basis the allocation of capital investments to agriculture in the postwar period and the scale of capital formation.

A. Definition of Agricultural Investments.

That there is a standardized definition of capital investments in Soviet agriculture largely follows from the necessity for regularized accounting procedures in the control of the socialist planned economy. The chief difference between Soviet practice and the general practice in capitalist economies is the inclusion of natural increments to the working and productive livestock herds as capital expenditures. Since the state is the sole proprietor of land and land is not bought and sold, the exclusion of land grants as capital expenditures follows from the logic of the economic system. By official definition, capital investments (kapital'nyye vlozheniya) exclude working capital and capital repairs. In agriculture, capital investments are defined as "expenditures for the creation of new and the expansion and reconstruction of existing fixed assets of agriculture." 4/

Capital investments for the socialist sector include the following elements of expenditures of sovkhozes, machine tractor stations, kolkhozes, and other agricultural enterprises 5/:

- (a) for the construction of new and the reconstruction of existing structures and installations, (b) for the laying out and setting up of perennial plantings (gardens, berry patches, etc.), (c) for melioration and irrigation, (d) for the acquisition of equipment, agricultural machinery and implements, transport facilities, farm stocks, etc., including the value of their delivery, assembly and installation, (e) for the

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manufacture of stocks and equipment in own workshops of the farm, (f) for the formation of the fixed herd [osnovnaya stada] of working and productive livestock and (g) for land construction, forest construction, programming, research and other capital expenditures of nonstock [non-working capital] character.

The content of most of the investment items listed above is self-explanatory, but the relationships of some of them to the land and inclusions of investments in kind tend to complicate them conceptually. Thus investments in land improvements -- such as irrigation nets, forest shelter-belts, and drainage -- are not, for accounting purposes, increments to the value of the state-owned land but investments strictly in works installed on the land. Fertilizers the effect of which is sustained in the land for more than 1 year are also regarded as capital investments. 6/ Manure is certainly excluded under this heading, and it seems doubtful that more than a few mineral fertilizers would be included except where used in the process of constructing perennial plantings.* If meliorative works must be regarded as installations whose value is separate from the land, then the same holds true of perennial plantings which reproduce themselves over time. As soon as the perennial plantings become of mature, yield-producing age they are regarded, like meliorative installations, as fixed assets. Perennial grasses, however, apparently are not so considered.**

Capital investments in livestock cover acquisitions (whether by natural increments, purchases, or other transfers) to the fixed herd. Into the composition of the latter are entered all working livestock and mature productive livestock, such as oxen, cows, goats, poultry, and bulls -- that is, in this basic "capital" herd are counted those

* One source carries mineral fertilizers as production expenditures in kolkhozes. 7/ In another source 8/ it is indicated, however, that fertilizer inputs used in the process of creating a perennial plantation should be treated as capital investments.

** This conclusion is based on the fact that the source 9/ excludes them from the list of perennial plantations (mnogoletniye nasazhdeniya) and because perennial grasses are nowhere included in listings of fixed agricultural assets. Another source 10/ classifies sovkhos expenditures on perennial grasses as working capital expenditures.

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animals which continue to reproduce livestock products, like dairy products and wool, or which reproduce themselves, as breeding stock. Expenditures on the acquisition of growing young productive animals and those being fattened or being raised exclusively for slaughter are classified as working capital expenditures. 11/ Thus the "working capital" herd excludes all draft animals and counts all young animals not yet of productive age as well as all animals not destined for reproductive functions, like the meat herd or animals raised exclusively for furs.

In Soviet investment accounting the volume of capital investments is calculated according to the "inventory value" (inventarnaya stoimost') of capital works. This is the value attached to them when entered into capital assets, at the moment of their acquisition or transfer to the status of a fixed capital item. The inventory value of capital investments is defined as follows 12/:

(a) for objects of construction and other capital works produced by contract order /podryadnym sposobom/ -- at the contract cost with the ordering plus the factual economic expenditures not entering into the contract cost; (b) for objects of construction, assembly works, and works for melioration and irrigation produced by the organizations own builders /khozyaystvennym sposobom/ -- at their factual net cost /sebestoimost' to the organization which is made up of expenditures for construction, including in these expenditures the cost of assembling internal equipment and expenditures for its assembly; (c) for perennial planting -- at the factual net cost of laying out and setting up their farms; (d) for acquired fixed assets (equipment, machinery, livestock, and so forth) -- at the factual cost of their acquisition including expenditures for their delivery to the farm; and (e) for own young livestock transferred to the fixed productive herds and into the composition of the working livestock -- at the planned cost of the young animals. In kolkhozes their own young livestock transferred to the roster of the fixed assets is valued at state prices for prize livestock.

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Since, strictly speaking, only a small share of kolkhoz livestock would be prize stock (plemennoy skot), this method of valuing increments to the fixed herd may appear at first sight to overstate original investment costs and the value of fixed assets in kolkhoz livestock. It turns out, however, that (1) the "prize stock" is to be valued according to its quality and (2) that the state prices are pegged at state procurement prices -- that is, the prices for obligatory deliveries. ^{13/} It seems more likely, therefore, that kolkhoz livestock investment values have been understated in terms of the cost of raising the animals or the prices they would fetch in state purchases or contracts or on the kolkhoz market. From September 1953, when procurement prices were raised by as much as five times for livestock products, it may be presumed that kolkhoz livestock investments will correspond more closely with "real" values. Natural increments to the fixed herds of all livestock considered as a total, of course, are in reality investment in kind. Hence standard values for them must be established. Thus when Soviet statisticians aggregate the growth to herds for given types of farms as a whole (for example, all kolkhozes and all sovkhozes) they exclude purchases and transfers within those categories. Similarly, in measuring capital investments in livestock for agriculture as a whole, purchases and transfers between sectors cancel out. ^{14/}

In terms of volume, increments to the fixed herds have been less significant than increments in kind from kolkhoz peasant labor engaged in construction projects. Kolkhoz income is low compared with any branch of industry, and labor payments to kolkhoz members for their own labor participation in kolkhoz construction are based not on a standard construction wage but on the distribution of earned shares of kolkhoz net income, the so-called labor-days. Actual labor cost payments for kolkhoz labor in capital works are lower than for the economy as a whole. For that and other reasons, Soviet statistical practice regards kolkhoz labor participation in capital construction of whatever type as investment in kind, and, consequently, on a national aggregative level it may be valued according to a single standard norm comparable to wage compensation for sovkhoz construction workers.* All available published data, however, are based on

* Kolkhoz labor on public roads is not included here. Obviously, this kind of kolkhoz labor is equivalent to a tax in kind annually assessed, and no wage compensation for agricultural construction is involved. For details on kolkhoz investment valuations, see D, below.

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the book values allowed by the kolkhozes themselves for labor investments. As will be indicated below, the norm of valuation used in kolkhoz bookkeeping practice might even deflate the actual cost of the amount of kolkhoz construction labor so accounted for, if compared with sovkhoz construction labor costs. At the same time, because of reporting inadequacies, labor and other kolkhoz investments in kind -- internal power resources, self-fabricated construction materials, and animal draft power -- are only partially and often inaccurately accounted for in the Soviet accounts based on money receipts.

In summary, investments in kind, chiefly from kolkhozes, greatly complicate the composition of total agricultural investments and make difficult any general formulation about the real value of agricultural investments. If investments in kind are by and large undervalued, then kolkhoz money investments are overvalued.*

Expenditures for capital repairs in state agriculture, as in industry, are calculated separately and are not included in the published totals for capital investments. Published data on kolkhoz investments, however, are generally inclusive of capital repairs. The reason for this irregularity in kolkhoz investment data is that most of the published information concerns the kolkhoz indivisible funds, and the latter are used for financing both capital repairs and capital investments. Even some working capital expenditures, like purchases of young animals, are financed by the kolkhoz indivisible funds. These considerations, too, inevitably complicate calculations of kolkhoz net capital investments and comparisons of state with kolkhoz investments.

B. Institutions of Soviet Agriculture.

The sources and distribution of investments in Soviet agriculture are, part and parcel, patterned on the legal relations peculiar to that agrarian system. By definition there are two kinds of socialist property in agriculture -- sovkhoz and kolkhoz. Under the state sector are grouped the state-owned sovkhozes, the subsidiary farms of non-agricultural state enterprises and organizations, and the state-owned machine tractor stations, afforestation stations, and so forth. Also considered as part of the state sector are the institutions and assets

* See p. 31, below.

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of general agricultural significance. These include the governmental organs supervising agriculture; installations, like irrigation networks, forest shelter-belts, and electric power stations, intended to service a multiplicity of sovkhozes and/or kolkhozes; and projects for research and development. The machine tractor stations provide for the servicing of machine cultivation and harvesting of kolkhoz crops.

Kolkhozes, occupying nearly 85 percent of the socialized sown area, are legally defined as cooperatively owned farms. Theoretically, they are voluntary associations of individual peasants who jointly own the means of production, excluding land, and collectively share the income from the operation of the kolkhoz. By far the greater number of kolkhozes are administered by the Ministry of Agriculture, but the subsidiary farms of nonagricultural cooperative enterprises (consumers' and producers' cooperatives) technically are also considered kolkhozes. ^{15/} These subsidiary farms of nonagricultural cooperatives, whose contribution is undoubtedly slight, although legally administered and financed in the same way as kolkhozes, are believed not to be included in the published totals for kolkhoz investments, nor does there appear to be evidence that their investments are counted in the published data on state agricultural investments.* Within the decade from the initiation of forced industrialization and agricultural collectivization to the outbreak of World War II, nearly all individually owned peasant farms were liquidated. After World War II, however, the USSR acquired an expanded western border area containing a thriving private peasant agrarian system. In the subsequent years, there is good reason to think, the western borderlands have been almost entirely converted by force to the collectivized system. There still remain, moreover, at the heart of the kolkhoz system in the USSR, the private garden plots of kolkhoz peasants, sovkhoz workers, and other individuals, which produce the main share

* In the prewar period, summary investment data on state investments may have included investments in farms of nonagricultural cooperatives (koopkhozes). No comparable data have been released since World War II. Because in computation of gross agricultural production these koopkhozes (see the discussion on p. 13, below) are calculated separately, it is assumed that the same practice holds in the calculation of agricultural investments.

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of products sold in private markets. Although this report is not concerned with investments in the private sector comprising these plots and what is left of individual peasant farming, it is important to note that investments in individually owned livestock are not negligible, since the private herds are a sizable share of total herds. Nearly half of all cows, for example, are still privately owned.

Subsidiary farms of state nonagricultural enterprises (chiefly of industrial organizations) are generally organized on sovkhos principles and are handled accordingly for planning and investment purposes. ^{16/} Thus, unless otherwise specified, the term sovkhos as used here also covers subsidiary agriculture of state nonagricultural organizations. The term kolkhoz legally also covers a subsidiary agricultural enterprise of koopkhoses so that in the following discussion what generally applies to the administration of kolkhoses will also hold true for koopkhoses; but estimates of kolkhoz investments will exclude the marginal contribution of the koopkhoses. Mechanized livestock and afforestation stations are organized on MTS principles, and most of the published data relating to MTS investment are inclusive of these specialized stations.

In two crucial respects, the sovkhoses and machine tractor stations occupy a central position in the Soviet agricultural investment picture. Sovkhoses own and control a large network of livestock breeding establishments, which in part provide for the kolkhoz livestock reproduction and breeding improvement program.* The machine tractor stations own and control the entire heavy equipment park of machinery -- tractors, combines, and cultivator aggregates -- providing for the mechanical cultivation and harvesting of kolkhoz crops. Both of the above services of sovkhoses and machine tractor stations are required to complement kolkhoz labor and land resources and thereby to insure the effective operation and preservation of the kolkhoz system. In reality, then, all state investments in machine tractor stations and some in sovkhos breeding establishments are ultimately investments in kolkhoz agriculture. At the present time

* In 1951, 20 percent of all pedigreed and improved breeds of livestock were concentrated in sovkhoses. ^{17/}

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there are in Soviet agriculture 93,000 kolkhozes, 9,000 machine tractor stations, and over 5,000 sovkhoses (not counting subsidiary farms). 18/

The institutions of state property in Soviet agriculture are thought of in Soviet economic doctrine as industrial enterprises and are therefore controlled according to the principles of industrial management. Laborers in machine tractor stations and sovkhoses are classified not as peasants but as workers.* State financing of sovkhoses follows the prevailing model of an industrial enterprise, although their traditionally low profits have made sovkhoses to an unusual degree reliant on state subsidies. The machine tractor stations, however, have been carried since 1938 as a gross entry in the state budget, which is to say that they receive almost all funds for expenditures directly from the budget and return nearly all income directly to the budget. As will be explained in more detail below, state policy since 1954 has decreed the removal of subsidies from sovkhoses, and there has been an increasing agitation to place machine tractor stations under the same regime of economic accountability as other industrial enterprises.

Institutions of collective property in Soviet agriculture are administered and financed quite differently. Kolkhoz labor is classified as peasant labor and is paid not an industrial wage but a wage based on an earned share of kolkhoz income, the payments being made both in money and in kind. Unlike sovkhoses and machine tractor stations, kolkhoz establishments are not financed under Financing the National Economy in the state budget, and they are generally required to meet all costs, including capital costs, out of their own incomes. As nonstate property, kolkhozes themselves are, in effect, no financial responsibility of the state. State budgetary appropriations which are earmarked for agriculture under Financing the National Economy therefore exclude funds for the internal financing of kolkhozes and include the following items: machine tractor stations, sovkhoses, ministerial administration

* Before August 1953, MTS tractor drivers and their helpers were carried on the personnel rosters of the kolkhozes, since most of them were kolkhoz members on loan to machine tractor stations. Since that date, however, they have been enrolled as permanent cadres -- that is, as workers of the machine tractor stations.

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and operation of agriculture, and expenses connected with projects of general agricultural significance -- for example, irrigation and electrification works and research and development. 19/

C. State Agricultural Investments.

1. Sources of State Investments.

The financing of state capital investments from the state budget is carried out in agriculture as in industry by means of non-returnable financing. Investment outlays from the budget represent a direct cost to the state, and the enterprise receiving the investment funds contracts no obligation for their return, although the recipient has legal responsibility for their correct utilization in the fulfillment of the national investment plan. In the postwar years the budget has continued to be the most important source of state investments, accounting on the average for over two-thirds of the total. (For a tabulation of the breakdown of state agricultural investments, 1946-55, see Appendix A, Table 5.*) Besides the budget, the other sources of financing state investments are the internal funds of enterprises originating from retained profits, amortization deductions, mobilization of internal resources (such as savings from increases in labor productivity), and savings from lowered costs of production (as from wholesale price reductions). Although the desirability of financing investments from retained profits is continually emphasized, the proportion of state investments financed by nonbudgetary sources has remained about one-quarter since 1948.

Administrative and economic conditions peculiar to agriculture have predetermined departures from the general industrial pattern in the financing of state agricultural investments. Since the machine tractor stations are a gross entry on the budget, they obviously can finance but a trickle from internal funds. The machine tractor stations are granted no amortization allowance, and the only internal funds that can be channelled into investments are receipts from the liquidation of fixed assets rejected on delivery and from the mobilization of internal resources. 20/ With their historically substantial

* P. 85, below.

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losses and low profits and with a high degree of centralization in the administration of their investment outlays, the role of internal funds in sovkhos capital investments also has been inconsequential. The sovkhos amortization allowance is 8 percent per year of the original value of all sovkhos fixed assets, four-fifths of which allowance is for capital repairs. 21/

As a matter of fact, the role of internal financing for state agriculture as a whole, including machine tractor stations, sovkhoses, construction organizations attached to agriculture, and all other state agricultural units, does not seem to have been very large. Actual agricultural investment in 1948 and the planned agricultural investment for 1949 incorporated internal investments of less than 2 percent, whereas for the economy as a whole internal financing contributed 15 and 31 percent, respectively. 22/ In 1954, when considerable effort was made to change the financial administration of the sovkhoses, state agriculture and agricultural procurement together were planned to receive only 6.8 billion rubles in profits, less than 6 percent of total profits, of which amount the part destined for plowing back into investment was only 0.26 billion rubles. 23/

Despite the unimpressive start indicated by the above figures, the post-Stalin regime, by a set of new policies, has seriously undertaken, beginning in 1954, to institute measures intended to increase the efficiency of state agriculture and to displace the traditional order of high subsidies and financial dependence on the state budget. The series of changes that have been established from 1954 so far apply principally to sovkhoses and should be considered part of the general economic effort to decentralize the detailed planning and supervision of production processes in the interests of greater efficiency and local initiative. 24/ Thus a somewhat greater responsibility and wider area of choice have been accorded republic and local organs in determining the means by which over-all plan goals will be reached. This policy is reflected, for example, in the creation of a metallurgical ministry for the Ukrainian SSR and an oil ministry for Azerbaydzhan SSR. For agriculture, in particular, this so-called decentralization in planning has received its latest rationalization in the decree of March 1955. 25/ Specifically, what has been undertaken is the removal of subsidies from sovkhoses by granting them increased delivery prices for agricultural products, thereby intending

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that the costs of sovkhos production shall be met from their own income receipts. 26/ Nothing has been said in this regard about the sources of financing sovkhos investments, but presumably the right now granted them to retain 20 percent of net income is designed to increase investments from this source. 27/

As for the machine tractor stations, the decentralization of planning tasks has not resulted to date in any known change in their position as a budgetary organization. Their investments, therefore, continue to be almost wholly financed from the budget. Recently, however, there has been an increasing agitation for placing the machine tractor stations, like the sovkhoses or any other industrial enterprises, under a regime of khosraschet -- that is, economic accountability and financial independence. 28/ Experiments partially along this line were reportedly conducted in a few oblasts in 1954. 29/ Of course, to put the machine tractor stations on a pay-as-you-go basis requires that the price values for the payments in-kind be increased substantially and that the chronically high MTS work costs be reduced. For instance, it was recently made known that in-kind and monetary incomes credited to MTS budgetary accounts have in recent years covered the costs of MTS production expenditures only in the amount of from 25 to 33 percent. 30/ The proponents of change, perhaps Khrushchev among them, argue for both increased delivery prices for kolkhoz products delivered to machine tractor stations and greater cost economies in the operation of machine tractor stations. It may be significant that the decree of March 1955, referred to above, obliges the machine tractor stations to submit this year's estimates of their net costs for each of the specific types of field work in which they engage. Such estimates probably would be required in order to obtain the cost data requisite to formulate increased delivery prices for payments in kind received by machine tractor stations from kolkhoses for services performed, so that they would cover the actual cost of MTS operations. In the event that the removal of sovkhos subsidies were complemented by placing machine tractor stations on the accounting system common to most industrial enterprises, then the role of internal funds as a source of capital investments in agriculture would compare more favorably with the proportion obtained in industry. It is probably safe to say that this is the present goal of state economic policy, though it is difficult, in view of past performance, to be overoptimistic about the prospects for its effective fulfillment.

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2. Types of State Investments.

Both in industry and in state agriculture, capital investments provided for in the national economic plan are known as "limited" (limitnyye) investments. Limited investments are subdivided further into above-limit (sverkh-limitnyye) and below-limit (nizhe-limitnyye) investments. 31/ Above-limit investments are usually those the costs for which are equal to or above norms set by the Council of Ministers of the USSR for specific types of construction projects in the different sectors of the national economy. Some projects in certain sectors of the economy, however, are classified as above-limit independently of their cost. 32/ Itemized lists (titul'nyye spiski) for above-limit projects, setting down detailed estimates for their cost, material requirements, and time schedules, must be approved directly by the Council of Ministers of the USSR. Below-limit investments are those for which the cost estimates fall below the norms for above-limit projects and which are not included by definition as above-limit. Itemized lists for below-limit outlays are approved at the ministerial level, but the over-all scale for below-limit investments for ministries and for the economy as a whole is set by the Council of Ministers of the USSR and provided for in the general terms of the national economic plan.*

Unfortunately, little is known about the relative proportions of above- and below-limit investments in state agriculture as compared with industry. It is clear by contrast that many of the production installations on farms cost less generally than do buildings and equipment for industrial plants. Agriculture's own resources, moreover, are much less than those at the disposal of industry. Taking account of these circumstances, and at the same time insuring that allocations to agriculture will not interfere with the higher priorities obtaining elsewhere in the economy, the Soviet government sets different norms for limited investments in agriculture than it does for industry. In 1951, for example, for structures built by construction organizations of the enterprises themselves, the above-limit norm in industry was 500,000 rubles per year. For structures of state agricultural enterprises the corresponding norm was 150,000 rubles. 34/ In agriculture and forestry, all state irrigation and melioration construction estimated to cost 5 million rubles is by

* See the discussion in source 33/.

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definition above-limit investment, and so also are investments in newly organized sovkhozes, regardless of their estimated costs. ^{35/} On the basis of these few scraps of information it is probably safe to infer that the proportion of below-limit investments in state agriculture is not greater, and probably is less, than in industry. In part, this thesis gains support if a sizable slice of below-limit investments originates from the enterprises' internal funds, as seems quite likely.

Capital investments may be classified also according to whether they are inside or outside the national economic plan. Until 1951, investments not provided for in the plan -- generally expended on small-scale investments -- were called outside-limit (vnelimitnyye) or noncentralized (netsentralizovannyye). Despite its apparent clarity, the concept of noncentralized investments is actually more ambiguous than the definition appears to admit. In 1949 and 1950, for example, noncentralized investments were said to be included in the national economic plan. ^{36/} After 1951 the so-called noncentralized investments were abolished by government decree and replaced by what are now called "above-plan" (sverkh-planovyye) investments. ^{37/} In effect, the promulgation of this decree seems to mean that the decentralized type of investments continues to exist. If indeed a substantial distinction obtains, it is not known in detail what distinguishes above-plan from noncentralized investments. It is clear that the use of internal funds is strongly emphasized in the financing of both; in particular, in sovkhozes and subsidiary agriculture, the use of above-plan profits is encouraged. ^{38/} Historically speaking, the profits of sovkhozes have been negligible, but in view of the increased profits anticipated for them from 1954, they are likely to become higher. The machine tractor stations, however, receive no profits, and other state agricultural organizations are normally service institutions producing nothing for the market. Therefore, it probably may be assumed that within total state agricultural investments the proportionate volume of above-plan investments was and is lower than in industry.

Finally, capital investments may be classified according to whether they are productive or nonproductive investments. The former include investments in the fixed means of production, while the latter are meant to cover investments in housing, schools, hospitals, and other assets providing for social-cultural and other communal needs. ^{39/} Figures are not available on the proportion of nonproductive

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investments in state agriculture, but it is clear with respect to housing that the allocations are much lower than in industry. Except for the top managerial personnel, few of the rural population live in dormitories or houses owned by agricultural enterprises. Practically all rural inhabitants, including state employees and workers, cultivate private plots, larger for kolkhozniki (collective farmers) than for sovkhoz workers, and live in their own houses located on those plots. The construction of rural housing, therefore, is nearly all carried out in kind or on the basis of state loans to individuals. Hence little housing is included in state agricultural investments as non-productive investments. On that score and because of the residual priorities enjoyed by agriculture, the proportionate share of nonproductive investments in state agriculture is lower than for the economy at large.

3. Financing State Investments.

Capital investments in the several branches of the national economy -- industry, transport, communications, trade, the communal economy, and agriculture -- are financed through the systems of special banks created for the purpose of servicing and controlling capital expenditures. Sel'khozbank, or the Agricultural Bank, serves as the financial agent for the disbursements for long-term investments in state agriculture.* Certain features, however, distinguish the financial control of state agricultural investments from the financial control of investments in other branches of the national economy. Sovkhozes of the Ministry of State Farms, for example, obtain heavy machinery and equipment, tractors, combines, trucks, and large generators, exclusively at the expense of budgetary assignments. Other smaller and less expensive machines and items of equipment sometimes are paid for directly by the sovkhozes. ^{40/} Sovkhoz capital expenditures in the formation of the fixed livestock herd are made also through Sel'khozbank, but according to a separate plan which is provided for, however, in the national economic plan and in the state budget. ^{41/} Increments in kind to the sovkhoz fixed herds are valued according to planned net costs. ^{42/}

* Where there is no local office of Sel'khozbank, the local office of Gosbank (State Bank) acts as the agent of Sel'khozbank.

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Capital investments of machine tractor stations are financed in the same way as their operational expenditures (including capital repairs) -- that is, directly from the budget. ^{43/} In both the sovkhozes and the machine tractor stations, the differences in the methods of financing investments are in the interests of a more rigidly controlled and centrally allocated distribution of the means of production. To some extent, the pervasiveness of nonreturnable financing reflects the practice of state subsidies necessary to finance the relatively high rate of investments that state agricultural organizations with their meager resources require. In the case of the machine tractor stations the state has arbitrarily eliminated profitability by the imposition of low delivery prices for payments in kind. The apparent losses of the machine tractor stations, though, are simply a matter of bookkeeping methods. Since the state realizes great profits from the turnover tax in selling the crops delivered to the machine tractor stations, the net result is to make the machine tractor stations a very profitable state enterprise.

At this point, the foregoing discussion on the origin and control of state agricultural investments may be summarized. Broadly speaking, investments from internal funds, below-limit investments, and above-plan investments can be considered, each in a restricted way, to represent a certain measure of decentralization in investment decision-making. Since each of these more locally managed types of investments plays a relatively insignificant role in state agriculture, there is, then, a narrower field for decentralized investment choice there than in the other sectors of the national economy. With a new set of policies in the sphere of economic planning, a step further in the direction of decentralized investments has been taken by the post-Stalin regime in allowing to the sovkhozes a wider margin in the accumulation and distribution of internal funds. Although the application of more local responsibility in investments to state agriculture as a whole will involve big problems, it would seem that such a goal is presently in the minds of leading elements in the Soviet government and in the Party. Should the financial measures so far applied to the sovkhozes be extended to include machine tractor stations and other state agricultural units, the place of internally financed capital investments might receive greater emphasis, and what is more probable, both below-limit and above-plan investments would also occupy a more prominent role in state agricultural investments than they have hitherto enjoyed,

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since they are the primary types of investments for which internal funds can be used. In short, the long-range aims boil down to the long-standing attempt to mould agriculture more rigidly to the model of the industrial enterprise. To date the Soviet press has made explicit only the drift toward the policy goals outlined here. The direction seems clear enough, while the successful realization is by no means certain.

Projects of general agricultural significance are defined as those capital works intended for the common service of state and/or kolkhoz agriculture, and they too are financed from the budget under Agriculture in Financing the National Economy. In this category fall major sources of hydroelectric power financed by agriculture, to the extent that agriculture shares in the consumption of such power. Main ditches of irrigation canals and regional projects for protective afforestation are similarly included. These projects generally are carried out by construction organizations subordinate to agricultural ministries, whose financial regime is similar to that of industrial construction organizations, and by the mechanized afforestation and melioration stations, managed according to MTS principles. The internal electrification of kolkhozes and the construction of branch irrigation ditches and forest shelter-belts on their own lands are not counted here and are financed by the kolkhozes themselves.

In implementing its agricultural policies, the post-Stalin government possibly may have made some minor and temporary departures from the established classification of state agricultural allocations. In September 1953, with the promulgation of the special decree on livestock, a minor exception to the delimitation of state investments is to be noted. According to the terms of the decree, the state budget is to cover the cost of planning and exploratory work and also of technical supervision in the construction of wells and other irrigation facilities on kolkhoz pasture lands. In the actual construction of these watering installations, the state budget in 1954 and 1955 is to finance 50 percent of the cost; and the kolkhozes, the remainder. ^{44/} Theoretically, the construction of wells on kolkhoz lands is financed only by kolkhozes' own investment outlays, but this presumed exception to the traditional coverage of state agricultural investments is possibly being financed from the budget under the heading of projects of general agricultural significance.*

* There would seem to be no other place in the budget where these expenditures could be carried more logically.

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In economic terms the Soviet government since Stalin's death has successively adopted two markedly different agricultural investment policies. Under Malenkov's direction the tendency -- of which the state investments in kolkhoz pasture land cited above are only one manifestation -- was to intensify investments in the existing farm operations, thereby planning in the short run to increase efficiency and labor-saving returns. Cutbacks in the more grandiose projects for the "transformation of nature," like the Main Turkmen Canal, were apparently ordered. Investments involving delayed returns were replaced partially by the effort to maximize returns on existing basic capital, so that the construction of sorely needed repair facilities for machine tractor stations, for example, received priority attention.

In February 1954, priorities shifted to the exploitation of vast areas of virgin lands of marginal productivity with the intent of obtaining quick return on investments in extensive agriculture. Given the share of investment resources available to agriculture, the new investment emphasis at least competed with, if it did not contradict, the original Malenkov policies. Malenkov's fall from power and the emergence of Khrushchev, the leading advocate of wholesale exploitation in the new areas, adds the advantage of hindsight to that conclusion, which now seems firm. Both Malenkov and Khrushchev apparently anticipated that agricultural investments would rise substantially in 1954 and 1955. What is striking, though, is the large size of state agricultural expenditures, 11 billion rubles in 1955, connected with the development of these new lands. ^{45/} One cannot be sure how much of that sum is counted as capital investment, but in this initial phase of the program perhaps the larger share must so be regarded.

A final point in the way of accounting procedures now arises. In the all-out effort to increase grain production by the working of the "new lands," kolkhozes have been assigned the leading role in terms of sown area. ^{46/} The main burden of state investments where kolkhoz operations are concerned will be in establishing machine tractor stations to service them. Still, both the kolkhozes presently existing and those shortly to be created in the "new lands" require new settlers to carry out the large-scale planned cultivation. The same need for colonists applies to sovkhoses in the new areas. In order to promote the migration of peasants and skilled workers, the state budget

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makes allowance in 1955 for financing in some cases 50 percent of the cost of individual housing in kolkhozes and sovkhoses of the new areas. The individuals receiving these state grants will be extended long-term loans to cover the balance of the house-building costs. ^{47/} As with the participation of state funds in kolkhoz well construction, these nonreturnable grants for housing will represent no great outlay from the state. It seems possible that the housing grants also are to be covered under allocations to projects of agricultural significance. It is equally possible that they are being financed elsewhere in the budget, in light of the recent departures from the traditional coverage of state agricultural investments.

D. Kolkhoz Investments.

As institutions of collective property, kolkhoz and cooperative organizations are not financed, save in exceptional circumstances, from the state budget by means of nonreturnable financing. There is no standard provision for allocations to kolkhozes under the budgetary category Financing the National Economy, and the only state funds that they receive are loans or credits on the order of returnable financing. ^{48/} Kolkhoz investments, furthermore, are not a part of the capital investment category of the state plans, though in a general way the state plan may prescribe certain over-all goals for their volume. ^{49/} For investment purposes, then, the chief source of financing kolkhoz capital expenditures, including capital repairs, is kolkhoz internal funds. On that score, the volume of kolkhoz investments, unlike state investments, directly depends on the amount of income of the agricultural enterprise. The types of funds the kolkhozes utilize for investment are two: the first, and by far the largest, is the kolkhozes' own funds earmarked for capital investments; the second is long-term credits granted by the state as loans to supplement kolkhoz funds on hand. The state exerts financial controls over kolkhoz investment funds through the regulations governing their deposits in and withdrawals from Sel'khoz-bank. Because of the differing coverage, methods of valuation, and large investments in kind represented in kolkhoz investment statistics, it is difficult to compare them directly with state agricultural investment data or to determine net kolkhoz investments.

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1. Kolkhoz Indivisible Funds.

Except for the small amount of share property -- less than 10 percent of fixed assets -- held by the kolkhoz members supposedly as a kind of undistributed common stock, the fixed productive and nonproductive assets of the kolkhoz are carried in the indivisible fund. All kolkhoz funds on hand earmarked for investment in the means of production originate from the indivisible fund of the kolkhoz. The indivisible fund, embracing nearly all kolkhoz communal property, represents, then, both physical fixed assets (the fund of capital stock in buildings, equipment, and so on) and resources earmarked for investments in the means of production and their capital repair (the stock of money and construction materials expended in investment flows).^{* Published figures, therefore, on indivisible fund investments, since they also contain capital repairs, differ in coverage from the investment statistics released on state agriculture. 50/ Besides their inclusion of capital repairs, kolkhoz indivisible fund investments also contain expenditures for young livestock which would be carried as working capital expenditures in state agriculture. 51/ The most significant working capital thought to be included in the indivisible fund is young productive livestock, since seed, forage, and other production funds are carried separately.** With one exception, it appears, kolkhoz indivisible fund investments are limited to outlays for fixed productive assets. The major share of kolkhoz nonproductive investments is believed to originate from a special fund (the social-cultural fund) set apart from the indivisible fund; but as investments therefrom are completed they become part of the indivisible fund considered as a physical capital}

^{*} For a more detailed definition of the indivisible fund as capital stock and of the capital stock represented in share capital, see II, C, 1, below.

^{**} Until 1 January 1947, kolkhoz bookkeepers were instructed to carry the seed, forage, and foodstuffs insurance funds under the account "Indivisible Funds and Share Capital." 52/ Even so, expenditures for the creation of these funds were covered from the account "Expenditures for Production Needs." 53/ Since 1947 these funds have been carried in separate assets accounts. 54/ For a more detailed treatment of the present status of these special funds, see source 55/.

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stock. Some nonproductive investments, however, are apparently financed from the indivisible funds. A recent source has indicated that the basic construction of kolkhoz clubs, movie theaters, libraries, hospitals, and so on is financed at the expense of the indivisible funds. 56/ The internal equipping and maintenance of such installations, on the other hand, is to be carried out at the expense of the social-cultural fund. Still, nonproductive outlays constitute a very minor share of total kolkhoz investments, leaving the indivisible fund substantially defined as a source of capital investments and capital repair in the fixed means of production.

a. Monetary Investments.

The largest part of the indivisible funds used for capital investments is the so-called "monetary funds of the indivisible funds earmarked for capital investments," and they are by law intended for that purpose alone. Investments in kind from the use of self-produced construction materials, animal draft power, other energy resources, and kolkhoz peasant labor, taken together with livestock increases, can amount to 40 percent of total kolkhoz investments in some years. Investments in kind are discussed, therefore, in some detail, after kolkhoz indivisible fund monetary investments.

Soviet writers ordinarily list the following sources for replenishments to the monetary funds of the indivisible funds of the kolkhozes:

- (1) All receipts of entrance fees (from 20 to 40 rubles) from peasants entering the kolkhoz as new members.
- (2) All receipts from the sale of property no longer useful to the kolkhoz.
- (3) Deductions from the monetary incomes of the kolkhoz in the amount of from 12 to 15 percent in grain regions and from 15 to 20 percent in regions of technical crops and animal husbandry.
- (4) All receipts from insurance compensations for kolkhoz property losses.
- (5) All interest earned by deposits of indivisible funds kept in Sel'khozbank. 57/

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Less frequently, two other sources of replenishments to the monetary funds of the indivisible funds for capital investments are mentioned. These are the following:

(1) Deductions as a result of nonfulfillment by the kolkhoz of the plan for the growth in herds of productive livestock "from receipts from the sales of this stock, and also production of its slaughter... in amounts fully guaranteeing the fulfillment of the plan for the growth of head of all kinds of livestock... ." 58/

(2) "receipts from the sale of livestock for the purpose of its exchange for pedigreed and improved livestock." 59/

Although Article 12 of the Model Charter of the Agricultural Artel* makes no mention of these last deductions, another authority does make brief reference to the "Model Charter of the Agricultural Artel and legislation." 61/ The "legislation" apparently applies to regulations concerning the appropriations of funds from the sale of livestock. These can only be counted as further obligatory deductions from kolkhoz monetary income.

The most important source of the monetary accumulations to the indivisible fund are the standard deductions from the monetary incomes of the kolkhozes in the prescribed amounts of from 12 to 15 percent and from 15 to 20 percent of those incomes. In 1948, the only year for which there are direct data, monetary allocations for the account of the indivisible fund were given as 3.4 billion rubles, an amount which probably includes deductions from all of the above-listed sources. 62/ More generous estimates of kolkhoz monetary income for that year cannot far exceed those of 1940, so that the 3.4 billion rubles might be from 16 to 18 percent of kolkhoz monetary income.**

* A copy of the Charter is in source 60/.

** For estimates of kolkhoz monetary incomes and the correlations of them with indivisible fund expenditures, see Table 2, p. 69, below. From 1946 to 1948, kolkhoz money investments were unusually high relative to kolkhoz monetary incomes in those years. Presumably this was because of the use of savings from the war and unusually high prices for investment goods purchased by the kolkhozes.

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In years of unusually low income perhaps the total monetary replenishments cannot be expected to overreach, say, 15 to 18 percent, and until 1949, at least, this may have been the case. After 1949, monetary replenishments for some years can be set at 20 percent of kolkhoz monetary income, but judging by the amounts of monetary investments, it is probably safe to say that monetary replenishments to the indivisible fund seldom amount to more than 20 percent.

If the hypothesis just outlined is accurate -- and in Appendix B, Table 6,* some firm data tend to bear it out -- then the standard monetary deductions (at from 12 to 15 percent and 15 to 20 percent), which might average out at 15 to 16 percent of kolkhoz monetary income, must be supplemented by the additional sources of accumulation to boost the total monetary replenishments to their estimated level of approximately 20 percent of kolkhoz monetary incomes. Interest payments on indivisible funds deposited in Sel'khozbank in 1947 were equal to about 2 percent of total indivisible fund expenditures, inclusive of investments in kind. 63/ There is little reason to think that receipts either from insurance compensation or from new membership fees would outweigh the latter source. Receipts from the sale of property no longer useful to the kolkhoz must likewise be assumed to be slight. The remainder of the deficiency that can be filled by the special deductions from sale of livestock (for making good underfulfilled livestock plans or for procuring improved breeding stock) cannot really be determined but may well exceed contributions from all of the other extra sources of monetary replenishments. If, as suggested, the additional sources of replenishment to the monetary portion of the indivisible funds account for 20 to 25 percent of the monetary accumulations, they are of considerable significance in kolkhoz investments.

Financial regulations and legislation governing the monetary accumulations to the kolkhoz indivisible funds and their utilization indicate that state control of these funds, though imperfect, is designed to be far-reaching. In the first place, the monetary portion of the indivisible fund earmarked for capital investments is by law exclusively a capital investment and capital repair fund. 64/ The monetary funds of the indivisible funds must be kept on deposit in Sel'khozbank, whose interest payments for their use are calculated at 3 percent per year. 65/ Though from time to time kolkhozes may receive the short-term use of their indivisible funds for production

* P. 91, below.

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expenditures and seasonal requirements, the short-term credits must be repaid and made available for future investments. 66/ Second, it seems that in the distribution of kolkhoz monetary income, deductions to indivisible funds hold next priority only to the obligations of the kolkhoz to the state. 67/ Finally, special instructions regulate the issuance of indivisible funds from Sel'khozbank to the kolkhozes for carrying out their own investments. Sel'khozbank inspects each request for a release of deposited indivisible funds, checking the request against the annual production plan of the kolkhoz and its established annual income-expenditure estimate. 68/ Presumably, in the event of violations or irregularities, Sel'khozbank retains the right to deny petitions for the release of funds. Periodically, workers of Sel'khozbank are to verify systematically the proper expenditures of released indivisible funds according to the projects for which they are designated. 69/

To list the various control measures for monitoring the monetary indivisible funds, of course, is to outline only ideal conditions. The enactment of special legislation shortly after the war "On Gross Distortions in the Work of Sel'khozbank," periodic non-fulfillments of the planned accumulations, and the continued misuse of indivisible funds down to the present time are strong evidence that the financial control of the kolkhozes by the state is far from what the state wants it to be. 70/ In general, the lack of financial discipline probably reflects the low intensity of labor discipline in kolkhozes and their erratic production and savings as compared with other branches of the economy. The fact that kolkhoz investments are not an integral part of the state investment plan may also help to explain their relatively ineffective system of administration.

The valuation of kolkhoz monetary investments presents a set of complex problems. Kolkhoz construction materials, trucks, and other equipment are not purchased at the same prices at which these goods are available to state industrial or agricultural enterprises. Instead, capital goods are sold to the kolkhozes at retail prices through the trade network of the system of consumers cooperatives,

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organizations whose business it is to make profits for the state.* The price differentials between wholesale and retail are not known, but a spread of from 40 to 100 percent for various items like cement, nails, and lumber would not be surprising. In part the disparities between the two price levels have been mitigated by the annual price cuts from 1947, especially by the cuts announced for 1953. It may be significant for kolkhoz investments that consumer price cuts for 1955 have not yet been announced.

Standard retail prices do obtain for ordinary construction materials available to the population at large. As for goods like trucks, generators, and most heavy equipment, there is no going retail market. What this means is that the state sets arbitrary "retail" prices for these major capital items. Again, the spread between wholesale and retail is unknown, but a few surmises may be attempted. Table 6,** for example, indicates very high kolkhoz monetary investments in 1946 and 1947, relative to kolkhoz monetary incomes in those years. Savings from the war period -- and this is entirely hypothetical -- may account for the amount spent, yet the question that arises is what they spent it for. Restoration investments, particularly for livestock in the formerly occupied areas, were required, but can they have amounted to nearly 13 billion rubles? There was certainly available little in the way of trucks or other big equipment items in the immediate postwar years. All these questions suggest that kolkhoz savings for investments were, in effect, requisitioned by what must have been very high prices for the goods that were acquired by them. For the postwar period as a whole the ruble volume of kolkhoz monetary investments may be compared favorably with that for state agricultural investments. Nevertheless, one must still ask what the kolkhozes have received for their investment rubles. The impressions of foreign observers and the revelations made in Party decrees in the last 2 years

* One source 71/ establishes that ideally all capital goods sold to kolkhozes go through the trade network of the consumers cooperatives. In practice, however, there probably are many exceptions. Recently a Latvian agricultural official denounced a situation in which kolkhozes must purchase part of the equipment for the mechanical feeding of livestock from the consumers cooperatives and part of it from Sel'khozsnab (the Chief Directorate of Agricultural Supply, under the Ministry of Agriculture). 72/ Presumably, kolkhoz purchases outside the consumers cooperatives are still at retail.

** P. 91, below.

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suggest a level of kolkhoz ownership in fixed capital assets not far in excess of prewar. Few kolkhozes, to take just one example, have managed to build adequate livestock shelters. The conclusion that the value of kolkhoz money investments compares unfavorably with the value of state agricultural money investments seems almost indisputably firm, though the lack of any detailed data precludes precise quantification of the difference.

b. Investments in Kind.

Little is known about the precise magnitudes of investments in kind in total kolkhoz investments. Representing a considerable share of kolkhoz investments, they are counted as part of indivisible fund capital expenditures. The two principal sources of kolkhoz investments in kind are the labor participation of kolkhoz peasants in capital construction and natural increases in the fixed livestock herds. Of the two, labor participation has the greater value. It must be remembered that in practice many investments in kind are never recorded and that kolkhoz livestock increments until recently, at any rate, probably were undervalued when compared with sovkhos livestock investments. Still, on the basis of indirect information, it is possible to reconstruct roughly the relative weights of the monetary outlays and of the in-kind inputs that get entered in the account books.

To arrive at the valuations of the relative weights, it must be determined what are the proportions of the different sources in the accretions to the fixed assets of the kolkhoz indivisible funds. At the beginning of 1948 the accretions to the indivisible funds classified as capital stock were constituted as follows: from monetary funds, 45.1 percent; from labor participation in construction, 26.6 percent; from increments to communal livestock (probably inclusive of communal animals outside the fixed herds), 13.1 percent; and from the value of socialized property and entrance fees at the time of collectivization and other state grants, 15.2 percent. ^{73/} All of the items are postcollectivization flows except the last, which may be assumed to have diminished to slight proportions since the mid-1930's. Therefore, in order to take a rough measure of investment sources, 15.2 percent is subtracted from the whole and it is assumed that the total supply of funds came from the other sources. Then, with this adjustment, the composition of the total investment flows from collectivization down to 1948 may be calculated as follows: from monetary investments, 53.2 percent; from labor participation, 31.4 percent; and from livestock increments,

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15.4 percent. Since other types of investments in kind (for example, self-produced construction materials and animal draft power) are not specified, it is assumed that they are included in the figure for labor participation, to the extent that they are recorded. While the inadequacy of the data should again be stressed, the important point to emerge from the calculation is the historical importance of investments in kind, which comprised nearly one-half of the total investment flows, throughout the greater part of the collectivization period. The estimates in Appendix B, Table 6,* indicate that since 1948 the role of investments in kind has slightly decreased, averaging about 40 percent of total investment from the indivisible funds.

With advances in technology and a rise in the installation of prefabricated as opposed to on-site construction, the proportion of labor inputs per unit of capital put into operation ordinarily would be expected to decline over time. Given the conditions of capital poverty in the average kolkhoz village, however, continued investments in kind on at least the present scale would seem to be a necessary condition for substantial improvements. In his speech of August 1953, Malenkov gave evidence that he was aware of both the problem and the potential for increasing the scale of kolkhoz investments in kind. The planned goal for kolkhoz indivisible fund investment was indeed so high -- 17 billion rubles -- that it could have been met only by a large increase in investments in kind.* In urging the kolkhozes to make their own bricks, he was repudiating the prohibitions he had placed on this kind of activity in the previous year at the XIX Party Congress. ^{74/} Yet this appeared consistent enough with the new general policy of more intensive investment in agriculture. Since the apparent ascendancy of Khrushchev in 1954 and the recent fall from power of Malenkov, there has been a curious silence from official quarters on the desirability of increasing the role of self-produced capital goods in kolkhozes. It seems clear that Stalin frowned on this activity for the competition it offered in the execution of the immediate tasks of the kolkhoz in the production of agricultural produce for the state. It now seems possible, at least, that Khrushchev, concentrating on staggering planned increases in the production of grain, has taken or will take the same jaundiced view that Stalin took concerning a diversion of kolkhoz labor from production to investment.

* P. 91, below.

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If the conclusion is warranted, then there is reason to be skeptical about the prospects for the fulfillment of the greatly increased goals for kolkhoz investment.

A word is in order about the method of valuing kolkhoz investments in kind. Livestock increments, as noted in I, A, above, are valued at state procurement prices, which vary with the quality of the animal. 75/ As young animals are transferred to the status of the fixed herd, increases in their value are recorded in terms of live weight at state procurement prices. 76/ Until 1953, when state livestock delivery prices were raised 3 to 5 times from the nominal prices previously prevailing, this method of valuing kolkhoz livestock investments should have tended to understate the cost of raising the herds, as compared with the planned net cost values allowed for sovkhos livestock increments. The major valuation problem in kolkhoz investments in kind, however, concerns the labor participation of kolkhoz peasants in capital construction, by far the largest source of investments in kind.

The theoretical norm in Soviet accounting is to value kolkhoz construction labor in terms comparable with sovkhos construction labor. 77/ In kolkhoz accounting practice, the ideal is far from being realized. For example, when a new structure has been built by a kolkhoz -- say, a barn, stable, or well -- its final value is to be determined by the costs that supposedly would have prevailed had it been completed by a local construction organization. 78/ It is hard to know how systematically such instructions are generally followed. An instance is given, however, of a building whose final book value has been determined at 8,000 rubles: all materials are purchased outside for 5,000 rubles, and, consequently, the value of labor participation is set at 3,000 rubles, being calculated as the residual, 79/ If this method of calculating investments in the final result renders objects of construction comparable in value with like structures in the state sector of the economy, it obscures other distortions. First, the costs to the kolkhoz for purchased construction materials are indeterminably higher than such costs to state organizations. Second, if labor values are calculated as a residual, they bear no necessary relation to real costs in terms of labor-day payments. In the average case it seems probable that while the money investments would be overvalued in terms of goods received, the labor investments would be undervalued in terms of wages for state construction workers.

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It is well to bear in mind that, in the relatively backward kolkhoz sector, the use of labor in construction is likely to be more extensive than elsewhere, and accounting methods are certainly cruder. Although little literature on the subject has ever appeared, Ural'skiy's article of late 1953 is quite explicit about the inadequacies in reporting kolkhoz construction labor inputs at the field level. ^{80/} Ural'skiy points to what are to him shocking gaps in the reporting not only of construction labor-days, but of self-produced construction materials, animal draft power, associated transport costs, and so on. The gaps become the more severe in the long-term development of perennial plantations and in the execution of capital repairs. Kolkhoz bookkeepers are instructed, it is true, to value all construction materials and means of production produced in the workshops of the kolkhoz at wholesale prices. ^{81/} Yet it seems doubtful that the typically poorly educated kolkhoz bookkeeper would often know the specified prices. Even if that problem were manageable, how, indeed, would he value animal draft power and a host of other associated inputs? The difficulties in the way of counting how many self-produced bricks and how many logs cut on kolkhoz forest lands are great enough, without the more complex problem of valuing them. Though a great deal of investment in kind must therefore never get entered into the books, it is not hard to see that there is much room here for increasing investment values on paper simply by improvements in book-keeping methods.

In view of the complexities sketched out above, the difficulties in making estimates adjusted for different price bases and the methods of valuing investments in kind can be judged to be great. The scope of the difficulties indicates that it can hardly be assumed that undervalued investments in kind cancel out overvalued investments in money. As an expedient, this assumption is often necessary but carries no visible guarantee of accuracy. Since practically all published data on kolkhoz investments relate to indivisible fund expenditures, it must also be taken into account that the latter contain an undetermined margin for capital repair expenditures. Ideally, adjusted estimates would require detailed information on price differentials or an itemized physical breakdown of the capital goods allocated to state and kolkhoz agriculture. If the ideal conditions have little prospect of being met, however, it is still possible continually to improve the estimates used by an awareness of all the complicating factors. Given the inadequacies of Soviet

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statistical practice in agriculture, it is even conceivable that research in the area of adjusted estimates would produce a statistical product equal to that presently available to the Soviet planners themselves.

2. Long-Term Credits.

As a proportion of total kolkhoz investments, long-term credits granted as state loans to kolkhozes are relatively the smaller share. In the Fourth Five Year Plan, long-term credits amounted to roughly 12 percent of kolkhoz investment.* Essentially, long-term credits are intended to supplement kolkhoz internal funds as a kind of pump priming in the interest of promoting investments. The state, of course, for reasons connected with the natural hazards, seasonal difficulties, and erratic levels of savings peculiar to the agricultural economy, finds it necessary to extend investment-promoting credits to kolkhozes. These credits, since they must be paid back, are not intended to be a long-run cost to the state or to other branches of the economy. As in the case of the indivisible funds, state regulations control the utilization of long-term credits, though incompletely. The control of long-term credits, furthermore, reflects the desired investment priorities in kolkhoz agriculture. Long-term credits for the prewar period are often grouped in statistical summaries under the heading of state investments in agriculture. For the postwar period they have been set aside into a classification by themselves.

A study of the origins of long-term credits demonstrates that the state puts up only a fraction of the loans at its own expense. To the extent that the state directly allocates a portion of its own budgetary funds for these credits, they are not financed from the budget under Financing the National Economy. Instead, they are financed from the budgetary category Other Expenditures and therein under Special Appropriations to Long-Term Banks. 82/

a. Sources of Long-Term Credits.

The balance sheet of the finance-credit plan of Sel'khozbank lists the following sources for long-term credits 83/:

* See Appendix B, Table 6, p. 91, below.

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- (1) Free funds of Sel'khozbank at the beginning of the planning year.
- (2) Repayments on previously issued loans.
- (3) Growth of the balances of funds of the indivisible funds of kolkhozes on the accounts for capital investments.
- (4) Other resources -- for example, interest assessments, insurance dividends, and other deposits.
- (5) Funds from the budget for reinforcing credit resources.

Except for the last item, all of the sources listed may be classified as internal accumulations in Sel'khozbank, and only the last item represents the use of state budgetary funds. In the use of its internal accumulations as a source of long-term credits, Sel'khozbank is simply engaging in the standard financial practice of lending the money of its depositors.

It is further indicated that budgetary funds in the appropriations of long-term credits are a kind of last resort, a residual in the amount necessary to meet the national credit plan. ^{84/} The proportion of budgetary funds in the plan for long-term credits in 1953 was only 30 percent of the total. ^{85/} 1953 was a year, moreover, in which the credits plan represented a considerable increase over the previous year and when long-term credits were to be 21 percent of total kolkhoz investment. A further check on the role of budgetary funds in financing long-term credits to kolkhozes is the scale of allocations to Special Appropriations to Long-Term Banks. There are estimated to have been 3 billion rubles planned in 1953 and 5 billion rubles planned in 1954.* Obviously, since these appropriations are to be distributed between all of the special banks, the shares for Sel'khozbank are only small fractions of the above figures.

* This estimate is based on the consideration of increased long-term loans in 1954 and allotments to this item in 1950 which were 3.0 billion rubles. ^{86/}

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The largest single source of the credit funds are the kolkhozes' own deposits of their indivisible funds in Sel'khozbank. This circumstance suggests the possibility that actually the funds of the more prosperous kolkhozes are the main source of credits for the insolvent kolkhozes. Any kolkhoz, of course, might prefer (or even find it necessary) to make the relatively small initial outlays allowed by the use of long-term credits to using its own funds. Of all of the bank's deposits, the kolkhozes' monetary indivisible funds on the account for capital investments are the largest in magnitude. It is known, furthermore, that those indivisible funds not immediately designated for definite projects find their way into the credit resources of Sel'khozbank. 87/ In order to maintain the largest possible margin of disposable deposits for credits, administrators of Sel'khozbank especially stress the prompt collection of repayments on previously issued loans. 88/

b. Control of Long-Term Credits.

Financial regulations governing the extension of long-term credits to kolkhozes supplement the regulations concerning investments from their indivisible funds and are a part of the over-all controls designed by the state to monitor the fulfillment of kolkhoz investment commitments. First and foremost, the long-term credits to kolkhozes may be used virtually exclusively for productive capital investments.* 89/ Actually, Sel'khozbank credits more than 30 types of production measures, which can be broken down into 6 consolidated groupings as follows 91/:

(1) For livestock, including acquisition of all types of pedigreed and nonpedigreed stock, construction of all types of livestock buildings, and the mechanization of livestock farms.

(2) For electrification and radio communications facilities.

* The only exceptions seem to be relatively slight investments for houses of kolkhoz managers (but even many of these are financed on the basis of loans to individuals 90/) and for fertilizers.

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(3) For irrigation, melioration, and afforestation.

(4) For crop raising, including such purposes as the mechanization of all phases of production, the construction of hot-houses, the setting up of perennial crop plantings, and the purchase of seed of perennial crops.

(5) For the purchase of mineral fertilizers.

(6) For other production measures, including construction, mechanization, and the purchase of construction materials.

In contrast with the indivisible funds, the expenditures from which are planned in detail only in the production plan and the income-expenditure estimate of the kolkhoz itself, the planning of long-term credits is a more centralized process. Sel'khozbank gets the process under way by drawing up, on the basis of general indexes for the development of agriculture, a proyekt (detailed statement) of the credit plan for the year, subdivided by Union Republics and by the various types of investment measures -- for example, livestock or electrification. The Ministry of Finance, in turn, inspects the proposed plan and submits it for approval to the Council of Ministers of the USSR. After the plan has been established by the Council of Ministers, Sel'khozbank informs its republic offices of the credit sums established for them; and the republic, kray, and oblast offices of Sel'khozbank, within the limits of the funds granted them, compile plans for submission and approval to the republic Councils of Ministers. At still a lower level, the rayon institutions of Sel'khozbank compile annual plans for credits for individual investment measures on the basis of the annual income-expenditure estimates for the production plans of the kolkhozes. These, in turn, are approved by the rayon executive committees. 92/

Control over the utilization of the long-term credits by the kolkhozes is realized through the many conditions which the kolkhoz must meet before loans can be granted. First, any request for credits must conform to the estimates in the annual income-expenditure declaration of the kolkhoz. Since credits are granted on the basis of established norms defining the amount of the capital expenditure to be met from kolkhoz internal funds and from credits for any given type of project, Sel'khozbank requires further verification that the kolkhoz

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has sufficient indivisible funds on deposit to cover the balance of the investment commitment. That condition and the further regulation that the kolkhoz must have observed the established goals for the formation and deposit of indivisible funds in the bank before credits can be granted demonstrate the existence of interlocking controls by the state over the two sources of kolkhoz investment. Theoretically, it might tend to establish the hypothesis of an interdependence in growth in the two types of kolkhoz capital expenditures. In the actual conditions of Soviet agriculture, however, the number of exceptions to the norms for crediting and the frequent violations of regulations are so great as to discount the hypothesis. The same thing holds for the inflexible rule that the repayments on previously issued long-term credits (another condition, incidentally, of extending new credits) never must be made from the indivisible funds of the kolkhozes but only from other prior deductions from their income.*

Rules concerning credit norms and their exceptions are indicative both of the frequently met financial insolvency of kolkhoz agriculture and the order of priorities the state desires for kolkhoz investments, most of which are spent on livestock and associated measures, since through the machine tractor stations the state controls the large park of mechanized power for crop raising. Some average norms for crediting are as follows 95/:

(1) For livestock buildings, up to 75 percent of the monetary expenditures, for a duration of 10 years, with repayment from the third year after issuance of the loan.

(2) For the purchase of pedigreed livestock, about 70 percent, for 3 to 7 years, with repayment from the second or third year.

(3) For irrigation of lands in steppe and forest regions of European parts of the USSR, from 1,000 to 2,000 rubles per hectare, for 8 years, with repayment from the third year.

(4) For the purchase of mineral fertilizers for technical crops, 80 percent, for 2 years, with repayment from the first year.

* On the general regulations covering the issuance of long-term credits, see source 93/. On the point concerning prohibition of the use of indivisible funds for repayments on previously issued credits, see source 94/.

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Few of the many norms, however, are inflexible, and Sel'khozbank allows many exceptions, depending on the importance of the credit being considered. Thus, with the promulgation of the Three Year Plan for the Development of Livestock (1949-51) and the Plan for Protective Forest Shelter Belts of 1948, kolkhozes were allowed for certain measures up to 100 percent of planned capital expenditures, regardless of their outstanding debts on previous loans and the status of their payments into the indivisible funds. 96/ In general, it seems that on proper authority the average norms for credits can be increased or decreased, depending on the investment priority or the financial position of a given kolkhoz. 97/ The flexibilities in the extension of credit grants would seem to be necessary both for the promotion of state priorities and for the purpose of reviving debt-ridden kolkhozes.

Sel'khozbank is charged with overseeing the utilization of long-term credits, just as it is with watching over expenditures of the indivisible funds. 98/ As in the case of the latter, this control is far from complete. Appendix B, Table 6,* shows, for example, the year-by-year disparity between plan and fulfillment for long-term credits. As late as 1953, after the Malenkov government had initiated a series of new incentive-producing measures in Soviet agriculture, the long-term credit plans were being grossly underfulfilled; and -- a chronic complaint -- repayments on earlier loans were being unsatisfactorily fulfilled. 99/

The considerable amount of red tape involved in extending long-term credits probably contributes to their underfulfillment. To date, the government apparently has done nothing to dispense with the deterrent implicit in the formidable regulations. Lately a prominent Soviet agricultural specialist has advocated that the system of multiple norms governing the distribution of long-term credits be scrapped and that kolkhozes be granted credits for capital investments in the full amount of the individual projects for which they are intended. 100/ Such an approach to the problem would be consistent with the current effort to decentralize planning, but it remains to be seen whether, even in part, the suggested proposals will be adopted.

* P. 91, below.

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E. Summary Remarks.

State agricultural investments in the USSR are strictly controlled by the extent to which they are directly financed from the budget and monitored in detail in their execution by the central planning authorities. Although the state, beginning in 1954, has granted the sovkhoses a somewhat greater freedom in the use of internal funds, capital investments in state agriculture as a whole are still characterized in this report as among the most centralized in the national economy. It seems probable, however, that the Soviet government intends in the near future to administer state agricultural investments in the same manner as it does industrial investments, though the prospects for successfully realizing this aim are by no means certain.

Kolkhoz investments, on the other hand, are not financed from the budget as are state investments. Nor are they subject to the same detailed administration of the central planning authorities. The state, in order to offset the relative autonomy implicit in this situation, attempts with limited success, especially in the distribution of long-term credits, to control kolkhoz investment fulfillments through the apparatus of its financial institution, the Sel'khozbank. Nevertheless, in actual practice, there is a much wider range of decentralized investment choice in kolkhoz investments than in state agricultural investments. Kolkhoz investments are perhaps the most decentralized investments in the national economy.

It has been shown that state agricultural investments contain a relatively narrow margin of nonproductive investments. Also it was pointed out that kolkhoz investments from long-term credits contain virtually no nonproductive expenditures. Housing for kolkhoz peasants is financed exclusively from personal savings or through additional long-term credits granted to individuals. 101/ Kolkhoz investments in social-cultural facilities are financed in part from the indivisible fund and in part from the social-cultural fund (kul'tfond) of the kolkhoz. The social-cultural funds are replenished from deductions from kolkhoz income in amounts not specified by the Model Charter of the Agricultural Artel but thought rarely to exceed 3 percent of kolkhoz monetary income. 102/ It may be assumed, therefore, that total agricultural investments, both in state and kolkhoz sectors, contain a relatively smaller share of nonproductive investments than investments in other major sectors of the national economy.

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As contrasted with state agricultural investments, the appropriations for which are made quite independently of the amount of income received by state agricultural organizations, kolkhoz investments are functionally dependent on savings from income. That is true of both long-term credits and indivisible fund outlays, since both must be paid out of deductions from kolkhoz monetary incomes in the long run. Since repayments on long-term loans must be financed from deductions above and beyond allocations to the indivisible funds, total kolkhoz savings plowed back into investments range somewhere above 20 percent of their incomes. In view of the relatively low levels of kolkhoz incomes as compared with incomes in other branches of the economy, the amount of savings so achieved may be said to restrict the kolkhoz potential for more consumption outlays.

Price differentials, large investments in kind, gaps in statistical reporting, and the inclusion of capital repairs in the published kolkhoz investment data greatly complicate the task of making estimates of the "real" volume of kolkhoz capital investments. The indicated variables also make for lack of complete comparability between the given value of kolkhoz investments and state agricultural investment statistics.

II. Capital Stock and Capital Formation in Soviet Agriculture.

A. Fixed Assets of Socialist Agriculture.

This section is concerned with the transition from flow to fund -- that is, investments as the sources of accretions to capital stock, the various categories of capital stocks in agriculture, and their distribution and composition in the different sectors of the agricultural economy. Soviet methods of valuing capital stocks in agriculture also will be reviewed. Private activity in agriculture will not be considered, although it is important to note that as investments in private livestock are significant, so also are fixed assets in that category of livestock.

If, because of state ownership, it is relatively simple to dismiss the exclusion of land grants as investments, the same does not hold true for land considered as a fixed asset. The problems inherent in assigning value to land in an economy which excludes it from the market may be insuperable in terms of precise quantification. Nevertheless, just as even in a socialist economy rent

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is a real factor cost, so does the land have real value. In listing the fixed assets of agriculture by owners, The Dictionary Handbook for Social and Economic Statistics places land in a separate category. It goes on to state that 103/

Land assets in the value of fixed assets of agricultural enterprises are not included. The monetary evaluation of the land assets and the inclusion of them in the sum of all fixed assets of agriculture is made only in special national-economic accounts.

The exclusion of any estimates for land values in the published Soviet data on capital stocks perforce rules them out of any assets figures appearing in this report. Some of the postwar literature suggests that there is a wide area of disagreement between Soviet economists over the very existence of rent and land values under conditions of Soviet socialism. 104/ For that reason it seems questionable that the "special national-economic accounts" have been kept up to date.

Fixed assets include not only the means of production, the so-called productive assets, but also nonproductive assets. The latter are defined as "fixed assets of nonproductive significance," and they include housing, buildings of communal-recreation types (dining halls, baths, and so on), and installations of cultural-educational significance (libraries, schools, clubs, and so on). 105/ Although most published Soviet agricultural data cover the non-productive assets, they are believed to constitute a very small percentage of the total, and the chief problem is to classify assets in the fixed means of production. A brief reminder on housing, however, may be in order. In the first chapter it was noted that housing was of little importance in either state agricultural investments or kolkhoz investments. Since housing in industry is a major component of nonproductive assets, the lesser share of housing in the composition of socialist agricultural assets reduces the proportion of nonproductive assets in agriculture as opposed to the industrial economy.

Fixed productive assets of agriculture, according to their "functional designations," may be subdivided into the following 11 categories 106/:

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1. Productive buildings and installations (except meliorative installations) servicing crop raising and animal husbandry and those of general economic significance, for example, subsidiary repair shops.

2. Meliorative installations and plantings (irrigation, drainage and other hydrotechnical installations, and protective perennial plantings).

3. Investments in melioration of lands and the simplest crop-technical measures for land improvements, such as the first breaking of land areas, application to the soil of fertilizers which will be effective for more than 1 year, and the planning of land sectors.

4. Perennial plantings being exploited, such as fruit-berry and technical crops in the fruit-bearing (ripe) stage.

5. Engines movable and stationary, including tractors.

6. Agricultural machinery and equipment, including combines.

7. Other agricultural stocks and instruments.

8. General-economic stocks (for example, repair equipment).

9. Transport means -- autotransport, other types of mechanized transport, freight and other transport.

10. Working livestock, such as working horses, working oxen, and working camels.

11. Productive agricultural animals (mature), with the exclusion of growing productive livestock and other agricultural animals being fattened or raised exclusively for meat (for slaughter).

Given the definition of capital investments, most of the categories of fixed assets are self-explanatory, except perhaps for meliorative installations, perennial plantings, and livestock. Land improvements through irrigation, drainage, and forest shelter-belts are not valued as increments to the value of the land, but rather simply as installations on the land at the cost of their construction. In the valuation

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of fixed assets, perennial plantings, similarly, are not regarded as increments to the value of the land. The mature crops themselves growing in the field are the assets, and they are valued at the cost of planting and raising them to maturity. Fixed assets in livestock are the total of animals in the fixed herd, which includes all working livestock and all mature productive livestock except that earmarked only for slaughter. Thus only growing young and finished animals are left out.

By way of differentiating fixed assets and capital investments from working capital, the last is defined as the "sum of those working funds of agricultural enterprises and farms which are invested in" the following 107/:

1. Productive material stocks -- fodder and silage (podstilochnyye) materials, seed and garden materials, liquid fuel and lubrication materials, solid fuel, mineral and organic fertilizers, medicaments, and other materials for agricultural production.
2. Young livestock and other agricultural animals.
3. Livestock and other agricultural animals for fattening.
4. Young perennial plantings not entered into exploitation and not yet yielding products.
5. Incompleted production -- unthreshed grain and unprocessed harvest of other agricultural crops, expenditures for harvests of future years, and so forth.
6. The unsold marketable part of agricultural production.

Kolkhozes as well as state agricultural enterprises keep an assets account of the "fixed means of production," the accounts for working capital items being carried separately. The kolkhoz indivisible fund, on the other hand, essentially relates to property ownership rather than to the purpose of the assets. Assets listed under the indivisible fund therefore include many working capital items, as will be explained below.

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Since the original value of a fixed asset is defined by the inventory value of the investment creating it, the original value of capital stocks in agriculture presents no new set of problems.* The matter of balance value (original value less amortization), on the other hand, does introduce a new set of refinements. In Soviet statistical practice, the fixed assets of machine tractor stations and kolkhozes are always entered on balances at their full original value, defined as the "sum of the actual expenditures for construction, acquisition, delivery, and installation of the given type of property at the moment of its going into operation." 108/ The reason for retaining original-value balances in machine tractor stations probably relates to their being a gross entry in the budget, with no amortization allowance figuring into the distribution of their funds. The fact that kolkhozes are not state-financed enterprises probably explains why they are not obliged to carry depreciation accounts. Sovkhozes and state-owned subsidiary agricultural enterprises, however, do keep balance value accounts which allow for amortization, whereas published postwar data cover only the original value of all agricultural assets. Helpful information on actual balance values is practically nonexistent. About the only known information directly related to the problem is that sovkhozes are allowed 6 percent of the original value of assets for capital repair. 109/ Thus little attempt is made in this report to set depreciation or replacement factors for agricultural capital stock. Taking the published data as they stand, then, the major inflationary factor is the failure to allow for depreciation in the balance values. From the latter part of the 1930's, too, all capital stock data, like investment data, are in terms of current prices.

As a particular instance of gross inflation in the value of agricultural assets, the Soviet method of accounting for capital stocks in areas of World War II war damage must be cited. The Dictionary Handbook for Social and Economic Statistics states 110/:

In regions having suffered from the Fascist-German occupation, immediately after their liberation an inventory and evaluation of the surviving

* See I, A, above for a definition of inventory value.

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(fully or partly) fixed assets of agricultural enterprises was carried out. The valuation of the surviving fixed assets was carried out at prices for which their restoration would be possible in the year of valuation.

While existing fixed assets in the formerly occupied areas were revalued in current prices, presumably -- although the same source is not specific about this -- assets lost from war damage were taken off the books at original balance values. Some hypothesis of this order is required to explain the fact that postwar valuation of agricultural capital stocks assumes apparently little or no war losses. For example, from the data in Appendix C, Table 7,* it appears that MTS war losses, in terms of original balance values, amounted to no more than 1 billion rubles, or 12 percent of the value of MTS assets in 1940. Of course, in absolute terms the losses were much greater. Similarly, kolkhoz fixed assets in 1950 were 90 percent greater in value than in 1940, so that it can be calculated that about 35 percent of Fourth Five Year Plan (1946-50) kolkhoz investments became a net incremental value to fixed assets (not taking into account what must have been small wartime investments). A net increment of 35 percent is about average for kolkhoz investments. In the cases of both the machine tractor stations and the kolkhozes, it is evident that the revaluation methods applied to capital stocks immediately after the war in effect reduced those war losses to a negligible minimum. Alternative hypotheses are possible, of course. One that suggests itself is that while the USSR indeed carried out its revaluation of capital inventories in the formerly occupied areas, its postwar published data have not taken war losses into account. In any case, both state and kolkhoz agricultural capital stocks estimates for the postwar period contain a considerable built-in inflator on the score of war losses.

In assigning rates of growth to agricultural capital stocks, attention should be called to one other feature of agricultural investments or, more precisely, the relationship of investments to the incremental value of capital stocks. In agriculture, many of the principal fixed assets, like livestock and perennial plantings, are extremely short-lived if compared with the principal assets of the industrial complex. For that reason, the proportion of capital investments in agriculture that become net increments to the existing value

* P. 97, below.

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of capital stocks is much lower than in industry. The data in Appendix B, Table 6,* for example, indicate that over a long-term period only about 35 to 40 percent of total kolkhoz investments become net additions to capital stocks. Essentially, then, a substantial percentage of agricultural investments are in effect replacement investments.

The most recent firm data for a complete breakdown of total socialist agricultural capital stocks are for 1937 -- that is, for the census date of 1 January 1938, the end of the Second Five Year Plan (1933-37). At that time, total productive capital stocks were valued at 30.6 billion rubles, including 2 billion rubles in assets of "general economic significance" -- for example, hydroelectric installations and subsidiary enterprises producing construction materials. Assets of purely agricultural significance were distributed as follows lll/:

	<u>Billion Rubles</u>
Buildings and installations (excluding meliorative)	8.3
Tractors	2.5
Combines	1.0
Other machinery and equipment	3.3
Productive livestock such as poultry and apiaries	3.5
Working livestock	3.1
Meliorative installations	2.1
All other	4.8
Total	<u>28.6</u>

It is not clear what components make up the "all other" category, but nonmeliorative perennial plantings probably are included. Apart from heavy machinery, detailed quantitative information on the shifts in the relative weights of these assets since 1937 is not available. Nevertheless, it is apparent that the chief dynamics have concerned the shift from animal to mechanical draft power. The increasing importance of mechanical draft power has been the result of the marked

* P. 91, below.

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decline in the horse herd during the war and the rapid postwar recovery in the agricultural tractor park. For instance, tractor inventories in 1953 were 180 percent of 1940. If tractor draft power in 1940 was 52 percent of total kolkhoz draft power (excluding combines), by 1954 it was at least 75 percent.*

Another less marked shift in the composition of agricultural assets in the postwar period has been the small but increasing importance of assets of general agricultural significance. The great Stalin projects during the latter part of the Fourth and the first half of the Fifth Five Year Plans called for greater investments than ever in afforestation, irrigation, and rural electrification. Although there is no information that allows precise measurement of these investments or the resultant assets, it is important to bear in mind when valuing net increments to agricultural fixed assets that the assets of general agricultural significance have a much longer life than farm assets generally.

B. Fixed Assets of State Agriculture.**

When compared with kolkhoz capital stocks, the capital stocks of state agriculture are characterized by a much greater weight of what might be called nonfarm assets. By nonfarm assets are meant heavy agricultural equipment (tractors and combines), buildings, and assets of general agricultural significance. Farm assets would be made up of such specifically agricultural stocks as livestock and perennial crops.

The estimates in Appendix C, Table 7, indicate that machine tractor stations have comprised about one-half of the value of state agricultural stocks. Since machine tractor stations carry out no crop raising or animal husbandry of their own, all of their fixed assets may be regarded as nonfarm assets. Consequently, the half of state agricultural fixed assets composed of machine tractor stations does not

* Based on prewar data given in source 112/ and on postwar data in Khrushchev's September 1953 Plenum speech. 113/

** Unless otherwise specified, all data in this section are taken from Appendix C, Table 7, p. 97, below.

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share the short-life characteristics of farm assets generally. For purposes of analysis, MTS assets may be grouped under two headings: (1) construction (buildings and service facilities) and (2) all machinery. According to the estimates made in this report, the value of construction assets has declined since World War II, while the relative weight of machinery has risen. Before the war, construction assets came to 20 percent of the value of MTS fixed assets, and machinery comprised 80 percent. Since the war, construction inputs have suffered while machine inputs, particularly in tractors, trucks, and combines, have been given relatively high priorities. This emphasis on heavy agricultural equipment and the concomitant disregard of the buildings and repair facilities necessary to service it have contributed much to the difficulty in increasing productivity of Soviet agriculture in the postwar period. Low priorities and the tight supply of construction materials and construction labor available for agriculture account for the drop in construction assets of machine tractor stations. At the beginning of 1953, MTS assets in buildings and installations for productive and service facilities were only 11 percent of total MTS capital stocks. Apparently in recognition of a critical situation, the post-Stalin government has ordered a construction program for machine tractor stations for 1954-56 that is designed to quadruple MTS construction assets.

For the other half of state agricultural capital stocks, the non-MTS half, the exact proportions shared by sovkhozes and installations of general agricultural significance are not known. As was suggested above, the proportion of assets of general agricultural significance is small and is only a fraction of the value of sovkhoz assets. As a guess, allowing for the trend of greater postwar investments in the general agricultural projects, it is probably safe to say that sovkhozes constitute upwards of 80 percent of the capital stocks of non-MTS state agriculture.

While the life duration of the assets of general agricultural significance will be similar to that of MTS assets, the life expectancy of sovkhoz assets more closely approximates that of kolkhozes. The chief factor for allowing sovkhoz assets to have a slightly greater life expectancy than kolkhoz assets is their own ownership of heavy equipment in tractors and combines. Postwar allocations of heavy agricultural equipment indicate that 18 percent of the tractors and combines allocated to Soviet agriculture go to sovkhozes. To the

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extent that there is a greater share of machinery in the composition of sovkhos fixed assets, the life expectancy of total sovkhos assets will exceed that of kolkhozes, possibly by as much as or more than 5 percent. Unfortunately, no data are available on the detailed composition of non-MTS state agricultural fixed assets.

An important point about the relatively greater life expectancy of state agricultural capital stocks is that over time the state can acquire a greater value of fixed assets per unit of investment than can the kolkhozes. In Appendix C, Table 7,* it has been estimated that the large composite weight of MTS and general agricultural assets in total state agricultural capital stocks makes it possible for approximately 70 percent of state agricultural investments to become net increments to assets. The result has been that although the state's assets before the war were valued at less than kolkhoz assets, by the end of the Fourth Five Year Plan state agricultural assets were worth nearly as much as kolkhoz assets. Although the estimates in support of that conclusion do not take into account the different investment values of a state and a kolkhoz investment ruble, it seems clear that by the middle of the Fifth Five Year Plan, at any rate, state agricultural assets must have been of greater comparable value than kolkhoz assets.

C. Fixed Assets of Kolkhozes.

In the above discussion on state agricultural capital stocks, in the USSR, many of the important features of kolkhoz capital stocks were mentioned by way of comparison. Before taking up a discussion of the composition of kolkhoz capital stocks, however, it is necessary to analyze their institutional features and sources of accumulation. The balance sheet of a kolkhoz has on one side a listing of its assets (fixed capital, working capital, production funds, and so on) according to distribution and utilization. On the other side of the balance sheet, the kolkhoz funds are listed according to the sources of their formation; that is, whether from indivisible funds, share capital, the seed and forage funds, and so on. Since the indivisible fund of the kolkhoz does not include all of the fixed means of production of the kolkhoz (because part of these are carried as share capital) and since the indivisible fund includes some working capital items (such as young

* P. 97, below.

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livestock, cash earmarked for capital investments, and unfinished construction expenditures), kolkhoz indivisible funds and kolkhoz fixed assets accounts differ both in coverage and in value.

1. Indivisible Fund and Share Capital.

The indivisible fund of a kolkhoz is created at the time of collectivization and is supposed to be composed, according to the Model Charter of the Agricultural Artel, of from one-fourth to one-half of the value of the just socialized property, depending on the wealth of the given kolkhoz. In addition, the newly joining members of the kolkhoz pay 20 to 40 rubles each in initiation fees. The socialized property includes, of course, all working livestock, large agricultural implements and machines, the required seed stocks, other livestock, and all large buildings and installations of communal productive and nonproductive significance. The remainder of the socialized property that does not enter into the composition of the indivisible fund, from 50 to 75 percent, is called the share capital of the members of the kolkhoz. The members hold these shares communally, without freedom of individual disposition, and in perpetuity, unless they leave the kolkhoz. On leaving the kolkhoz, according to the terms of the Charter, a peasant is entitled to the money equivalent of his portion of the share capital.*

For several reasons, one would expect that the share capital amounts by now to only a token value alongside the value of assets in the indivisible funds. In the first place, except for postwar territorial acquisitions and the Baltic areas, the process of collectivization was completed by the mid-1930's. Therefore, the life duration of most of the assets of the original share capital must have expired by now. Second, the closest reading of the Charter or the sparse literature on the indivisible fund fails to disclose any provision whatever for postcollectivization replenishments to share capital. On the contrary, from the evidence examined in the previous chapter, all capital investments of the kolkhoz enter into the composition of the indivisible funds only. The point is emphasized by the fact that at the beginning of 1948 only 15 percent of the value

* A copy of the Model Charter of the Agricultural Artel appears in source 114/.

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of the indivisible fund was composed of property socialized at the time of collectivization and from accumulations from initiation fees levied on new kolkhoz members. Shkarednyy, a leading authority, states that on the eve of the war only 10 percent of the fixed assets of kolkhozes were accounted for by peasant property socialized at the time of collectivization. 115/

Despite all those considerations, however, share capital may now be something more than token value alongside the fixed assets in the indivisible funds. The estimates in Appendix B, Table 6,* for the value of indivisible funds and fixed assets are subject to a perhaps wide margin of error, being based on percentage increases over 1940, which year, in turn, had to be estimated. Still, the estimates consistently show that up until 1952 the fixed assets of kolkhozes both before and after the war were about 10 percent greater in value than the indivisible funds. Since the indivisible fund carries many items of a nonfixed-capital type, the greater value of the fixed assets accounts presumably must be explained by a rather substantial margin of share capital in the fixed capital accounts. In turn, the persistence of the difference in value between the two accounts probably is explained by the postwar collectivization of the newly acquired border regions. Although the newly acquired areas represent but a small share of the total collectivized area, the fact that their assets were entered at current price values must also be taken into account.

To a great extent, the distinction between share capital and indivisible funds is an artificial one. Both categories, of course, are actually kolkhoz property. Yet "tens of thousands of accounting workers," as one writer puts it, year after year continue to calculate the value of share capital in the socialized property of kolkhozes, when this property "has already been long ago amortized." 116/ One wonders, indeed, if in the case of assets like livestock the argument can be contested. As a matter of fact, too, even if many of the originally collectivized assets have not expired, they must be very near to that condition.

If share capital considered as an assets account is but a small share of kolkhoz fixed assets, the indivisible fund represents by far the larger share of kolkhoz fixed assets and some other funds as well. As pointed out in I, above, indivisible fund investment

* P. 91, below.

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expenditures finance not only capital investments properly so called, but also capital repairs and many working capital expenditures. Therefore, in the balance sheet of the kolkhoz the following items on the assets side will make up the total carried under the account designated Indivisible Fund and Share Capital on the liabilities side:

- Fixed Means of Production
- Young Livestock and Livestock Being Fattened
- Construction Materials
- Small Inventory (such as office supplies)
- Monetary Funds on the Account for Capital
- Investments
- Paper Securities
- Expenditures on Unfinished Construction

What with seed and forage funds being carried separately after 1946, the most significant working capital item in the indivisible fund account is the balance of livestock not in the fixed herd. Monetary funds earmarked for capital investments also can considerably increase the value of indivisible funds over the fixed assets account, as can unfinished construction. The other items balancing Indivisible Funds and Share Capital are of small, though precisely unknown, significance. 117/ From what has been said, it is clear that indivisible funds are not a pure capital stock fund, and, therefore, published figures covering rates of growth to the indivisible fund should not be confused with data on the growth of kolkhoz fixed assets.

2. Sources of Accretions to the Indivisible Fund.

The sources of accretions to the indivisible fund are three: monetary and in-kind indivisible fund investments, long-term credits, and investments from the cultural fund. Indivisible fund investments were covered extensively in I, above, so that it is necessary to make only a few remarks about the other two sources of capital which originate outside the indivisible fund. As investments of long-term credits granted to the kolkhozes by the state enter the status of fixed capital items, they also enter into the composition of the indivisible fund. The long-term loans cannot be paid back, however, out of the indivisible fund investment funds, but only out of additional deduction from kolkhoz monetary income. 118/

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The kul'tfond of the kolkhoz is an investment fund for outlays in nonproductive assets. Once the kul'tfond expenditures acquire the status of fixed capital items, they, like expenditures of long-term credits, enter into the composition of the indivisible funds. Additions to the kul'tfond come from special deductions from kolkhoz monetary income after kolkhoz obligations to the state and requirements for deductions to the indivisible funds have been met. 119/ The Charter does not specify norms for deduction to the kul'tfondy, but in 1937 expenditures from the kul'tfondy were 3.8 percent of kolkhoz monetary incomes, and in 1938 they were 3.0 percent. 120/ Although these were perhaps not average years, they suggest relatively low investments in nonproductive assets.

3. Composition of Kolkhoz Fixed Assets.

The most recent firm data on the composition of kolkhoz fixed productive assets are for the beginning of 1951, or for the inventory year 1950. At that time, working and productive livestock amounted to 39.8 percent of the value of means of production of kolkhozes; structures and buildings, to 32.7 percent; agricultural machinery, stocks, and equipment, to 23.6 percent; and perennial plantings, to 3.9 percent. 121/ The major share of livestock in the composition of kolkhoz fixed assets is striking, especially when one considers that much in the way of buildings and equipment in kolkhozes must be used for servicing livestock. Livestock are about the same weight of kolkhoz assets that tractors are of MTS assets. The great importance of livestock in kolkhoz assets has peculiar effects on the growth of kolkhoz assets. First, since livestock assets are quite short-lived, this helps to explain the relatively small incremental value of kolkhoz capital investments to existing fixed assets (about 35 to 40 percent), whereas in machine tractor stations, for example, the incremental value of investments over a short period is thought to approximate 95 percent. Second, in extremely good or bad agricultural years, unusual increases or decreases in livestock herds should influence the growth rates in the balance values of kolkhoz fixed assets accordingly.

Finally, one other factor influences, to an undetermined degree, the high ratio of kolkhoz capital expenditures to the net incremental value of fixed assets. That factor is the inclusion of expenditures for capital repairs in indivisible fund investments. Therefore, the estimated 35 to 40 percent of kolkhoz "investments" that become net additions to assets is an inflated figure to the extent that kolkhoz investment data are inclusive of capital repairs.

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D. Summary Remarks.

This examination of the characteristics of agricultural capital stocks has attempted to point out some of the factors greatly complicating their valuation. First, Soviet methods of valuing agricultural assets make it difficult to assign them real or comparable values. The problems of deflating for depreciation and constant prices are too far-reaching to be attempted in this report. Indeed, they form the subject of special research yet to be done if the attempt is to be successful. Second, the task of valuation is further complicated by the fact that agricultural capital stocks possess a mix of assets of varying life expectancies many of which are relatively short-lived. The result is a high ratio of capital investments to the incremental value of capital stocks. Finally, the mix of assets is such that some of them, particularly livestock, will reflect the erratic conditions of the different agricultural years.

III. Capital Investments and Capital Formation in the Postwar Period.A. Capital Investments.1. Postwar Plans for Soviet Agriculture.*a. Fourth Five Year Plan.

In the First and Second Five Year Plans, state agricultural investments were 10.8 billion rubles (inclusive of capital repairs) and 11.3 billion rubles (exclusive of capital repairs), respectively. ^{122/} The Third Five Year Plan, over the individual years 1938 through 1941, called for state agricultural investments totaling 6.35 billion rubles. ^{123/} The USSR has published few detailed data on agricultural capital investments in the postwar period. In terms of the 1945 price base, the Fourth Five Year Plan (1946-50) specified that 19.9 billion rubles were to be invested in state agriculture.** The published breakdown of this Fourth Five Year Plan figure indicated

* Unless otherwise specified, all data in Section III, A, 1, are taken from Appendix A, Table 5, and Appendix B, Table 6, pp. 85 and 91, respectively, below.

** This figure is inclusive of noncentralized investments, but these, for reasons noted in Section I, must have been very small.

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only that 8.8 billion rubles, or 44 percent, were for machine tractor stations; 2.0 billion rubles, for sovkhoz livestock; and 2.0 billion rubles, for afforestation and irrigation. It is estimated that about 7.0 billion rubles in all, or 36 percent, were earmarked for sovkhozes, and a total of 4.0 billion rubles for projects of general agricultural significance. The Fourth Five Year Plan further specified that kolkhoz indivisible fund investments of 38 billion rubles were anticipated. No breakdown of kolkhoz investment distribution was given, nor were any long-term credits goals cited.

Midway in the Fourth Five Year Plan the Soviet government and the Communist Party initiated two new long-term investment projects for agriculture. The first of these, the Afforestation Plan, was announced in 1948 and became known as part of the "great Stalin projects for the transformation of nature." Extensive plantings of forest shelter-belts throughout the steppes and forest-steppes of European USSR were called for. Although no anticipated investment outlays were given at the time, it may be concluded that the costs were not meant to be staggering. In 1949 and 1950, for instance, planned investment in afforestation amounted to less than 10 percent of total planned state agricultural investments.

The second project, initiated in 1949, was known as the Three Year Livestock Development Plan. The object of this plan was to promote the growth of communal and state livestock herds, which had been lagging behind the Fourth Five Year Plan targets. Again, no intended investment outlays were announced, but the state did liberalize the granting of long-term credits to kolkhozes for the acquisition of livestock and the construction of livestock facilities. The fact that in state agricultural investments of 1949 and in those planned for 1950 sovkhoz livestock investments accounted for one-fifth of total state agricultural investments might be explained largely by the requirements of the Three Year Livestock Development Plan.

The composition of state agricultural investments in the Fourth Five Year Plan shows some significant shifts from the pattern of the prewar 5-year plans. In the First, Second, and Third Five Year Plans, investments in sovkhozes were half or more of total state agricultural investments. From the mid-1930's, machine tractor stations constituted about 40 percent of total state agricultural

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investments, and projects of general agricultural significance made up the balance of around 10 percent.^{124/} In the Fourth Five Year Plan, MTS planned investment probably outweighed sovkhos planned investment, and projects of general agricultural significance are estimated to have been planned at 20 percent of total state agricultural investments. Judging by the mere 0.1 billion rubles spent for afforestation in 1948 and by the small outlays for rural electrification in the Fourth Five Year Plan, it is possible that the "great projects" were initiated for the purpose of achieving not much more than the original plan goals for projects of general agricultural significance.* Little evidence is available on the composition of kolkhoz investments in the Fourth Five Year Plan, but since roughly 40 percent of kolkhoz fixed assets are made up of livestock, construction measures associated with livestock development must be a considerable item in kolkhoz investment.

b. Fifth Five Year Plan.

Even less information is available on the volume and distribution of agricultural investments called for in the Fifth Five Year Plan (1951-55). The official announcements were restricted to the general statements that the total volume of state agricultural investments was to be 2.1 times the achievement of the Fourth Five Year Plan. Planned investments in afforestation and irrigation were to be four times greater than in the previous plan. No goals for kolkhoz indivisible fund or long-term credits investments were specified.

Before the Fifth Five Year Plan was modified by the post-Stalin government, the most important information relating to the planned composition of state agricultural investments was the increase of four times scheduled for irrigation and afforestation outlays. It may be assumed, therefore, that the Fifth Five Year Plan goals for afforestation and irrigation maintained, if they did not increase, the Fourth Five Year Plan share of 20 percent for projects of general agricultural significance in total state agricultural investments. Confirmation of the continued importance of projects of general agricultural significance is in the series of long-term

* On electrification investments, see Appendix A, Table 5, note f, p. 86, below.

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irrigation projects that were undertaken at the beginning of the Fifth Five Year Plan. Leading examples of the new general projects were the South Ukrainian - North Crimean Canal and the Main Turkmen Canal, both adjuncts to the Stalin plan for the "transformation of nature."

The estimated breakdown of the 1950 Plan may serve possibly as a sort of guide to the planned distribution of investments in the Fifth Five Year Plan. From the 1950 Plan estimates, it would appear that the share of sovkhoz investments in total state agricultural investments was planned to decline in the Fifth Five Year Plan. Probably, too, the amount of MTS construction was, out of need for greater efficiency, planned to rise as a share of total MTS investments. No details on the composition of kolkhoz planned investments were announced.

c. Goals of the Post-Stalin Government.

The new agricultural policies of the Malenkov and, later, the Bulganin government were necessary primarily because of the critically low level of agricultural production. In the prescribed remedies for that situation, investments are to play an important, but not necessarily the most important, part. The promotion of incentive-producing measures is perhaps even more important and, in the form of higher delivery prices for agricultural products, perhaps equally costly to the state. No goals for total state agricultural investments in 1953 were announced, but state agricultural investments in 1954 were to be 21 billion rubles, or an 80-percent increase over investments realized in the previous year. Soon after Stalin's death it appeared that cutbacks or abandonments had been ordered in some of the long-term general agricultural projects like the Main Turkmen Canal and the afforestation program. Planned MTS investments in 1954 and 1955, as in the Fourth Five Year Plan, were to account for about 45 percent of state agricultural capital investments. However, investments in MTS construction, which had been badly underfulfilled in the previous postwar years, were now to constitute one-third of the MTS investments. Sovkhoz capital outlays planned for 1954 and 1955 are estimated also to absorb about 45 percent of state agricultural investments. The greater share devoted to planned sovkhoz investments in 1954 and 1955 reverses the trends initiated both in the Fourth Five Year Plan and in the original terms estimated for the Fifth Five Year Plan. The reversal suggests, not only that the great projects have been trimmed, but also that current plans have finally sanctioned

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the high level of capital costs in fact required in the postwar period for the operation of the sovkhoz system.

Under Malenkov the change in the pattern of state agricultural investments seems best characterized as a shift from extensive to intensive investments.* The development was illustrated in the shift of capital outlays from general projects and an almost exclusive concentration on heavy equipment in machine tractor stations to greater planned investments in sovkhozes and in MTS construction assets. While capital investments for the national economy (exclusive of kolkhoz investments) were planned to increase in 1953 and 1954 at rates of 8.8 percent and 8.5 percent, the share therein of capital invested in state agriculture also was planned in 1954 to increase slightly. If planned agricultural investments from 1950 to 1952 tended to average 10 percent of total state capital outlays, in 1954 they were planned to be 12.4 percent (see Table 1**).

When Malenkov fell from power, there seems to have occurred a shift in emphasis on the priorities of consumer goods industries and the investment policies best calculated to carry out consumer goods goals. In agriculture there was manifested a change in policy direction as early as February 1954, when Khrushchev announced the inauguration of the "new lands" program. Neither then nor since has the USSR publicly revoked any of the new investment goals in MTS construction and sovkhozes, and there has been no indication of reduced agricultural investments. Still, it was announced that state expenditures connected with the exploitation of the "new lands" in 1955 would reach the not inconsiderable sum of 11.5 billion rubles, a large part of which is sure to be devoted to capital investments. It is evident, furthermore, that in the present agricultural program the development of these virgin lands for expanded grain production has the top priority where the allocation of resources is concerned. Insofar as the traditional shortage of capital goods for agriculture is accompanied by priority attention to capital outlays for the "new lands," one suspects that the more intensive type of planned capital investments will suffer the brunt of any shortages. Machine tractor stations in the new areas are almost sure to receive the lumber for construction before machine tractor stations in the established regions, just as

* See p. 23, above.

** P. 63, below.

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presently existing sovkhoses are likely to stand a poor second to the newly created sovkhoses in the "new lands" as receivers of state capital goods.

Whatever the extent of the changes in economic policy introduced by Khrushchev and Bulganin after the fall of Malenkov, in agriculture there has occurred no reversion to the Stalinist policies. None of the incentive measures in the form of higher delivery prices or reduced taxes has been repudiated. There is no suggestion, moreover, that present levels in agricultural investments will be allowed to decline, although agricultural investments continue to be a relatively small share of national economic capital expenditures. It is quite possible, in view of the ever-increasing demand for greater marketed agricultural output, that Khrushchev realizes, as Stalin apparently would not, that agriculture cannot permanently continue to operate on the same residual investment priorities. In line with a more stringent policy of planned economies, capital investments planned for the national economy in 1955 were tapered off at slightly less than those planned for 1954. State agricultural investments, moreover, were planned to exceed slightly those scheduled for 1954. The promotion of the "new lands" program would seem to assure for the immediate future a continuing growth in state agricultural investments. At the same time, the investment emphasis implicit in the plans for the "new lands" gives some reason to doubt that the USSR will be able to meet the type of agricultural investment commitments elaborated in 1953 for the intensified capital development of agriculture in the established agricultural regions.

In August 1953, at the session of the Supreme Soviet, Malenkov announced that kolkhoz indivisible fund investments in 1953 were planned at 17 billion rubles. This large proposed investment goal probably required a substantial rise in kolkhoz investments in kind for its fulfillment. Long-term credits planned for 1953 were 3.5 billion rubles, whereas those planned for 1952 were 3.6 billion rubles. Since 1953, no information has been released on total indivisible fund investments. Planned indivisible fund monetary investments in 1955 (12.8 billion rubles) were, however, 30 percent greater than those realized in 1953. Long-term credits planned for 1954 and 1955 were 3.9 billion rubles and 5.2 billion rubles, respectively. In general, total monetary investments of kolkhozes are being planned to increase with the anticipated rises in kolkhoz

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monetary incomes occasioned by higher procurement and purchase prices. At the same time, the share of long-term credits in planned money investments of kolkhozes also is slightly increasing. Although planned investments in kind have not been announced, it may fairly be assumed that kolkhoz labor participation in construction will not receive under Khrushchev the same measure of approval as it did at Malenkov's prompting in 1953.* No details on the composition of kolkhoz investment plans were announced.

2. Plan Fulfillment.**a. Fulfillment in State Agriculture.

Total state investments realized in agriculture during the Fourth Five Year Plan are estimated to have been about 31 billion rubles. Since the 31 billion rubles represent a composite series of current rubles, it is not known -- although it seems possible -- whether the Fourth Five Year Plan goal of 19.9 billion rubles in 1945 prices was fulfilled. For the first 4 years of the Fifth Five Year Plan (1951-54), state agricultural investments are estimated at 56 billion rubles. Again, because of price reductions, it is not certain whether the latter, which is also the sum of investments in terms of current prices, will satisfy the twofold increase called for in the plan in terms of 1950 prices. Surely, in terms of current rubles, state agricultural investments in the Fifth Five Year Plan were more than double those of the Fourth Five Year Plan.

An examination of the rates of growth of state agricultural investments from 1946 to 1955 yields some interesting results, as shown in Table 1.*** For the first 3 years of the Fourth Five Year Plan (1946-48), state capital investments in agriculture were, one is tempted to say, fairly negligible. Although investments in 1948 were nearly double those of 1946-47 taken together, for the 3 years they amounted only to about 8 billion rubles. Whatever the significance of these small state investments for agriculture itself during the first 3 postwar years, it is apparent that agriculture enjoyed only the lowest priorities in the distribution of capital resources on a****

* See p. 31, above.

** Unless otherwise specified, all data in this section are taken from Appendix A, Table 5, and Appendix B, Table 6, pp. 85 and 91, respectively, below.

*** Table 1 follows on p. 63.

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Table 1
State Agricultural Investments in the USSR
1946-55

Billion Current Rubles				
Year	A a/* State Agricultural Capital Investment	B) Percentage Increase in Column "A" over Previous Year	C b/ Total Capital Investment over National Economy	D` Column A as Percent of Column C
1946-47	(4.0) c/		111.8	(3.6)
1948	4.3		78.2	5.5
1949 (plan)	9.2		105.5	8.7
1949 (actual)	(9.0)	(109.3)	(112.0)	(8.0)
1950 (plan)	15.7			
1950 (actual)	(13.3)	(47.7)	(129.7)	(10.3)
1951 (plan)	(16.9)			
1951 (actual)	(15.1)	(11.4)	(135.7)	(11.1)
1952 (plan)	(14.7)		143.1	(10.3)
1952 (actual)	(13.5)	(-8.9)	(138.0)	(9.8)
1953 (plan)			156.1	
1953 (actual)	12.0	(-8.8)	(144.0)	(8.3)
1954 (plan)	21.0		169.0 d/	12.4
1954 (actual)	(18.0)	(50.0)		
1955 (plan)			167.2 e/	

* Footnotes for Table 1 follow on p. 64.

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Table 1

State Agricultural Investments in the USSR

1946-55
(Continued)

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- a. Data are taken from Appendix A, Table 5, p. 85, below.
 b. Except where otherwise specified, data are taken from source 125/.
 Column C represents outlays both from the budget and enterprises' internal funds. The figures are exclusive of capital repairs.
 c. Figures in parentheses are estimates; plan figures are underlined.
 d. 126/
 e. 127/
-

national scale, accounting in 1946-48 for less than 5 percent of total capital investments in the national economy. The first fruits of post-war reconstruction were delivered abundantly only to the heavy industrial plants and the cities, not to the farms and the villages.

In 1949 and 1950, when the lines producing tractors and other agricultural machinery had been fully restored and extended, investments in state agriculture occupied what came to be their normal share in total state investments. By that time, too, there was perhaps a greater margin of construction materials available for agriculture. State agricultural investments in 1949 more than doubled the low level of 1948, reaching an estimated 9 billion rubles. If agricultural investments were 6 percent of all state capital investments in 1948, in 1949 they were 8 percent. In 1950, the final year of the Fourth Five Year Plan, an expanding economy allocated over 13 billion capital investment rubles to state agriculture, and the share of agricultural investments in national economic investments rose to slightly more than 10 percent, the approximate level at which they would remain until 1953. Still, in 1950, state agricultural investments are estimated to have been underfulfilled by 8 percent.

In 1951, the initial year of the Fifth Five Year Plan, agricultural investments in the state sector continued to increase, but not at the high rates that previously low investments had made possible in 1949 and 1950. The sum of 15 billion rubles estimated for 1951 maintained, if it did not slightly increase, agriculture's

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share in total capital investments in the national economy. As in 1950, however, there was a gap between plan and fulfillment, estimated at about 9 percent. In 1952, not only was the plan underfulfilled again by an estimated 9 percent but the amount of state agricultural investments dropped in absolute terms below the previous year for the first time in the postwar period (from 15 billion rubles in 1951 to 13.5 billion rubles in 1952). It seems likely, however, that agriculture at least very nearly held its 10-percent share in total state investments.

The investment drop estimated for 1952 probably is related to several factors. In the first place, the plan for investments in 1952 was surely lower than in 1951, by an estimated 2 billion rubles. Second, there were some price reductions announced in 1952 for certain types of agricultural machinery. Third, the investment plan for the national economy as a whole was underfulfilled. Yet, even considering all these factors, it is not improbable that even more stringent residual priorities were forced upon agriculture during this critical year of the Korean War and that that event may explain in part the supposed drop in agricultural investments in 1952.

Moving into 1953, the first year of the post-Stalin regime, the Soviet government, while inaugurating a new set of economic policies involving higher priorities for agriculture, again trimmed the amount, in absolute terms, of investments devoted to agriculture. A drop of nearly 9 percent, from 13.5 billion rubles in 1952 to 12 billion rubles in 1953, is again estimated to have occurred. Actually, the decline in this case does not seem to have signified a refutation of the spirit of the new plans announced for agriculture. The sum of 12 billion rubles did represent, it is true, an even slightly smaller share for agriculture in national economic capital investments, an estimated 8.3 percent as compared with the 10-percent average of previous years. There is reason to suspect, however, that a drop in state agricultural investments was planned in 1953, a year of extensive revision in investment projects. Before the new policies could be got under way, certain types of construction (for example, some of the great projects) had to be curtailed or abandoned, new plans had to be drawn up and new projects scheduled, and stocks of working capital built up. It was necessary to wait until 1954, as the budget in general for that year illustrates, before Malenkov's new economic policies could be launched at full speed ahead.

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The year 1954, then, was the year of the first "Malenkov" budget, and nowhere was this more apparent than in the state agricultural investment plan for that year. Capital investments in agriculture were planned to increase by 80 percent, from 12 billion rubles actual in 1953 to 21 billion rubles planned in 1954. A higher ratio of state agricultural investments to total national economic investments was fixed, with agriculture to receive 12.4 percent as its share. Although the investment plan for agriculture in 1954 probably was not fulfilled and is estimated to have realized only 18 billion rubles, that is still a 50-percent increase over 1953.

In the Soviet press there has been no announcement of the state agricultural investment plan for 1955, but on the basis of examination of the 1955 budget information, it is likely that an increase over 1954 is intended. This seems the more assured with the apparent urgency being accorded the realization of the "new lands" program. There is good reason to think, moreover, that even if the distribution of investments in agriculture has been revised by Khrushchev and the Bulganin government, agriculture's increased share of 12 percent or so in total state capital investments is being maintained.

In the actual distribution of state agricultural investments during the Fourth and Fifth Five Year Plans, it appears that the outlays were not made strictly according to the planned proportions. This was true in particular of the investment grants made to sovkhoses and to projects of general agricultural significance. Total MTS investments, on the other hand, seem to have accorded with the planned distribution. The Fourth Five Year Plan called for 44 percent of state agricultural investments to be composed of MTS investments, and it is estimated that from 1946 through 1952 the sum of 26.1 billion investment rubles allocated to machine tractor stations was in fact 44 percent of total state investments devoted to agriculture in those years. In the Fourth Five Year Plan, sovkhos investments are estimated to have been planned at 36 percent of total state agricultural investments, allowing the residual of 20 percent for projects of general agricultural significance. In the actual fulfillment of these plans, however, it seems that sovkhos capital expenditures were consistently higher than planned and that, consequently, the plans for general projects were underfulfilled. The evidence on the point is certainly not extensive, but from the scattered firm data in Appendix A, Table 5,* it does not

* P. 85, below.

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appear possible that 20 percent of state investments in agriculture went for projects of general agricultural significance. That leaves sovkhoses, whose high operating and capital costs are proverbial in Soviet economic literature, to absorb the large balance, roughly estimated to have been between 40 and 45 percent in 1946-52. Thus the plan fulfillment of the Fourth and Fifth Five Year Plans, where sovkhoses were concerned, in principle had continued substantially the pattern of the prewar plans, throughout which sovkhoses took up half or more of total state agricultural investments and general projects received about 10 percent. Although the tentativeness of the estimates should be emphasized, they are an interesting commentary on the scale of the Great Stalin Projects, most of which come under the heading of projects of general agricultural significance. It is interesting again to note, according to the estimates, that for 1953-55 both plans and fulfillments seem to grant sovkhoses their previously prevailing high share in state agricultural investments. At the same time, plans for general projects have probably been trimmed to correspond with their actual scale in the past.

Before proceeding to an analysis of kolkhoz investment fulfillments, it is in order to make a few comments on the internal composition of MTS and sovkhos investments in the postwar period. Within MTS investments the salient feature of distribution is the emphasis of heavy equipment (tractors, combines, and trucks) and the low share of investment in construction assets. The latter comprised from 1946 through 1952 less than 10 percent of total MTS investments. This relationship explains in part the lower operating efficiency of the machine tractor stations and the high idle time for tractors. This explains, too, why the USSR presently is planning to allocate one-third of MTS investments to construction. Within sovkhos investments the scattered data indicate that livestock investments (probably inclusive of buildings and other construction for livestock) have been the largest single capital expenditure. In 1949 and 1950, livestock investments were probably more than half of total sovkhos capital outlays. One explanation of the high level of investments associated with livestock development in sovkhoses is the probable high cost of sovkhos labor. In terms of their sown area, sovkhoses' investments in heavy machinery are large. However, with sovkhos allocations of tractors and combines having averaged, year by year, about 18 percent of all allocations, and with total sovkhos investments out-stripping the growth in machinery allocations, the share of investments devoted to heavy equipment in sovkhos investments has been falling off continually.

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b. Fulfillment in the Kolkhoz Sector.

Total kolkhoz investments (including investments in kind, indivisible fund money investments, and long-term credits) were 59 billion rubles in the Fourth Five Year Plan (1946-50). In the first 3 years (1951-53) of the Fifth Five Year Plan, total kolkhoz investments were nearly 50 billion rubles, indicating a substantial rise in the yearly investment averages. Table 2 shows the growth of kolkhoz investments, 1946-55.* With indivisible fund investments of 51 billion rubles, the Fourth Five Year Plan goal of 38 billion rubles in terms of 1945 prices possibly was fulfilled. No goals for Fifth Five Year Plan total kolkhoz investments have been published, but the corresponding absence of information on the measure of fulfillments in total kolkhoz investments for the individual years of the Fifth Five Year Plan suggests continual underfulfillment. This hypothesis may be supported partially by the almost chronic underfulfillment of the long-term credit plans in the postwar period. As in the determination of "real" fulfillment for state agriculture, the problem is complicated by deflationary current prices.

Two factors of considerable importance complicate the measurement of rates of growth in kolkhoz investment. These are the investments in kind and the capital repairs (and some working capital items) that are included in kolkhoz indivisible fund investments but are not included in state investments. Having no concrete evidence to base them on, this report applies no adjustments for the capital repairs in the final estimates of kolkhoz investments. As for investments in kind, it was found possible to make estimates only for the periods 1946-50 and 1951-53 and for the individual years 1950 and 1953. While average investments in kind were 43 percent of Fourth Five Year Plan (1946-50) indivisible fund investments, they were only 31 percent in the first 3 years (1951-53) of the Fifth Five Year Plan. Likewise, according to the estimates, investments in kind in 1950 were 50 percent of indivisible fund investments, but in 1953 they were 41 percent. The estimates for 1950 and 1953, of course, may be subject to rather wide margins of error, although they do tend to establish the probability that, on a year-to-year basis, kolkhoz investments in kind have not varied directly as a constant function of kolkhoz monetary investments. About all that can be said with precision is that as kolkhoz monetary investments, with some notable setbacks, have continued to

* Table 2 follows on p. 69.

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Table 2

Kolkhoz Investments in the USSR a/
1946-55

Billion Current Rubles								
	A	B	C	D	E	F	G	H
	Indivisible Fund				Total	Percentage	Total	
Year	Total (B + C)	Money	In Kind	Long-Term Credit	Money Investment (B + D)	Increase in Column E over Previous Year	Kolkhoz Investment (A + D)	Kolkhoz Money Income
1946-50	51.0	29.1	21.9	7.9	37.0		58.9	
1946		7.3		0.5	7.8			
1947		6.7		0.6	7.3	-6.5		21.7
1948		(4.5) b/		1.1	(5.6)	(-23.3)		
1949		(4.6)		2.7	(7.3)	(30.4)		
1950	(12.0)	6.0	(6.0)	3.0	9.0	(23.2)	(15.0)	(34.8)
1951-53	41.0	28.1	12.9	8.5	36.6		49.5	
1951		10.2		3.0	13.2	46.6		38.4
1952		8.2		2.7	10.9	-17.4		(42.8)
1953	(16.4)	9.7	(6.7)	2.8	12.5	14.7	(19.2)	49.6
1954		(12.4)		(4.1)	(16.5)	(32.0)		
1955 (plan)		12.8		5.2	18.0			

a. Kolkhoz investments are inclusive of capital repairs and some working capital expenditures. All data in this table are taken from Table 6, p. 91, below.

b. Figures in parentheses are estimates; plan figures are underlined.

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rise in volume, the share of investments in kind has been declining. Because investments in kind, then, are thought impossible to estimate year by year, the following discussion of the rates of growth in kolkhoz investments is confined largely to money capital outlays.

Total kolkhoz monetary investments (monetary indivisible funds plus long-term credits) in the Fourth Five Year Plan were 37 billion rubles, whereas for the first 4 years (1951-54) of the Fifth Five Year Plan they amounted to an estimated 53 billion rubles. Yearly averages in kolkhoz monetary capital allocations therefore have been steadily rising in the postwar period. Practically none of the years taken by itself, however, exhibits conformity to the average. For example, the first thing noticeable in examining the rates of growth of kolkhoz money investments (see Table 2*) is that in the first 2 postwar years, 1946 and 1947, they were at a level (7.8 and 7.3 billion rubles) that would not be surpassed until the final year of the Fourth Five Year Plan, 1950. In 1948, kolkhoz monetary investments took a drop of 23 percent from 1947, to 5.6 billion rubles, while in 1949 they just recovered the 1947 level. 1950 saw a further rise of 23 percent, boosting the monetary investment level to 9 billion rubles. The first year of the Fifth Five Year Plan, 1951, witnessed the largest increase over a previous year (47 percent) in kolkhoz monetary investments and the largest absolute volume (over 13 billion rubles) of the postwar period until 1954. In 1952, for the first time since 1948, kolkhoz total money investments again dropped in volume from the previous year, by about 17 percent to 10.9 billion rubles. An increase in volume of about 15 percent in 1953 raised kolkhoz monetary investments to 12.5 billion rubles, still short of the 1951 level. Only in 1954, with an estimated increase of 32 percent over the previous year, to 16.5 billion rubles, was the 1951 level surpassed. Planned investment in 1955 of 18 billion rubles indicates that the Soviet government anticipates positive rates of growth, even if slightly diminishing, in kolkhoz cash outlays for capital investments.

The behavior of the growth rates just examined is hardly intelligible without an analytical breakdown of the two components composing kolkhoz cash investments: monetary indivisible funds and long-term credits. Looking first at monetary indivisible fund investments in the Fourth Five Year Plan, it is clear that these were higher in 1946 and 1947 (7.3 and 6.7 billion rubles) than in any succeeding year of the Fourth Five Year Plan. In 1948 (a poor agricultural year) and

* P. 69, above.

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1949, indeed, kolkhoz monetary indivisible fund investments dropped considerably, to the stagnant level of about 4.5 billion rubles in each year, and in 1950 indivisible fund cash outlays still lagged behind 1946 and 1947. The obvious explanation for the fact that total kolkhoz money investments recovered the 1947 level in 1949 and surpassed it in 1950 is the steady rise in the volume and share of long-term credits in the Fourth Five Year Plan. It was the increase in long-term credits in 1949, when kolkhoz indivisible fund monetary investments were still very low, that permitted recovery; just as the 3 billion rubles of long-term credit expenditures in 1950, being 50 percent of kolkhoz indivisible fund monetary expenditures, raised total kolkhoz money capital investments to a new postwar high. What remains hard to explain with assurance in regard to kolkhoz money capital expenditures in the Fourth Five Year Plan is their relatively large volume in 1946 and 1947, totaling 15 billion rubles, while state agricultural investments for the same period are estimated at 4 billion rubles. This problem was discussed at some length in the first chapter but should again be pointed up before proceeding to the rates of growth in kolkhoz money investments in the Fifth Five Year Plan. Savings from the war might have been the source of these high investments in the first 2 postwar years, but in view of the scarcity of capital goods available to agriculture at that time it is nevertheless likely that the costs of kolkhoz investments were unusually high.*

In the first year of the Fifth Five Year Plan, 1951, kolkhoz indivisible fund monetary investments reached their highest level (10.2 billion rubles) in the postwar period until 1954. Continuing high long-term credits of 3 billion rubles in 1951 boosted total kolkhoz money capital investments to 13.2 billion rubles. Then, in 1952, both indivisible fund money outlays and long-term credits fell, the former to 8.2 billion rubles and the latter to 2.7 billion rubles. This drop in investments duplicated the estimated investment behavior in the state agricultural sector in 1952. Although a reduction in planned capital outlays might have partially explained the decline in actual state agricultural investments in 1952, that factor probably did not apply to the kolkhoz sector, since both the long-term credits plan and actual kolkhoz monetary income in 1952 increased. A capital shortage induced by the requirements of the Korean War may have even greater relevance for the 1952 drop in kolkhoz investments than for the drop in state

* See p. 30, above.

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agricultural investments. In 1953, the inaugural year for Malenkov's agricultural policies, kolkhoz indivisible fund monetary expenditures increased over 1952, to 9.7 billion rubles; but long-term credits remained at nearly their 1952 level, and total kolkhoz money investments, consequently, failed to recover the 1951 level. In 1954, however, kolkhoz indivisible fund money investments reached a new peak, estimated at 12.4 billion rubles, and they were complemented by a corresponding high in long-term credits of 4.1 billion rubles, resulting in an overall increase for kolkhoz money investments of 32 percent over 1953. In 1955 it is interesting that while both monetary indivisible fund expenditures and long-term credits are planned to rise, the long-term credits are planned to increase at the greater rate and to constitute a larger share of total kolkhoz money capital disbursements.

Although little is known about the composition of kolkhoz investments, that is, the shares going to the various types of capital construction, it is possible to break them down by their sources. Kolkhoz investments in kind have already been discussed above in this regard. It therefore remains to mention the share of long-term credits in kolkhoz investments and some of their distinguishing characteristics. In the Fourth Five Year Plan, long-term credits were 15.5 percent of total indivisible fund investments, while they were 27 percent of indivisible fund cash outlays. In the first 3 years (1951-53) of the Fifth Five Year Plan the corresponding figures are 21 and 30 percent. In 1954, long-term credits constituted an estimated one-third of indivisible fund monetary expenditures. In 1955 that share is planned to increase even more. With a steadily declining share of investments in kind and reduced rates of growth in indivisible fund money outlays, it may be anticipated that the importance of long-term credits will continue to increase. Except for the decline in 1952 and 1953, the steady rise in long-term credit allocations from 1946 through 1954 is rather impressive. The impression is modified, however, by an inspection of the percent of plan fulfillments in long-term credits. From 1950 through 1953, long-term credits are known to have been short of the planned goals in every year. In 1954, perhaps for the first time in the Fourth and Fifth Five Year Plans, long-term credits were oversubscribed, by an estimated 5 percent.

Since kolkhoz money incomes are the source of kolkhoz indivisible fund monetary expenditures, it is appropriate to compare the former with the latter. From the study of regulations governing

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the deductions from kolkhoz monetary incomes to the indivisible funds made in I, above, one would expect indivisible fund money outlays to constitute an annual average ranging between 16 and 20 percent of kolkhoz monetary incomes. Unfortunately, there are only scattered estimates for kolkhoz monetary incomes, and the years for which they are available do not entirely correspond with that hypothetical average. In 1947 and 1951, for example, kolkhoz indivisible fund monetary expenditures were near one-third and one-fourth, respectively, of kolkhoz monetary incomes. In 1950, 1952, and 1953, however, kolkhoz indivisible fund cash outlays were 17, 19, and 18 percent, respectively, of kolkhoz monetary incomes. The estimates do not clinch the argument, but they tend to support the original hypothesis that indivisible fund monetary investments constitute a range of between 16 and 20 percent of kolkhoz money incomes. As in the case of investments in kind, the share in some individual years will probably vary considerably from the norm. It is perhaps even more hypothetical to suggest that kolkhoz money income in 1953 of 50 billion rubles represents a kind of high-water mark which in the immediate future there will serve as an income plateau. At any rate, it might be supposed that the small increase planned for kolkhoz indivisible fund cash investments in 1955 is thus explained.

Finally, this discussion of kolkhoz investments in the postwar period should set down what little is known about the objects of investment of which they are composed. In the new Political Economy, A Textbook published in 1954 it is stated that in the Fourth Five Year Plan, livestock investments (both money and in kind) amounted to 11 billion rubles out of 51 billion rubles in indivisible fund investments, or to 21.5 percent. 128/ For the first 3 years (1951-53) of the Fifth Five Year Plan, indivisible fund investments were 41 billion rubles, while livestock investments were 5 billion rubles, or about 12 percent. Since livestock makes up the principal fixed capital asset of kolkhozes, the share for livestock appears low at first sight. Partly this can be explained by the low delivery prices at which natural increments to the fixed herd are valued. The declining share of livestock investments in 1951-53, on the other hand, may indicate seriously underfulfilled plans in the livestock development program. It should be noted also that of the 11 billion rubles allowed for the expansion of the fixed herd in the Fourth Five Year Plan, only 1 billion rubles represents cash expenditures for the purchase and breeding

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of new stock.* 129/ These low cash outlays for livestock investments strongly suggest that the prices kolkhozes pay their peasants for livestock purchased must be nominal. No information has been found in the course of this research on the composition of the larger balance of kolkhoz investments, although buildings and other facilities for livestock are thought to be a sizable item.

c. Comparative Investments in Socialist Agriculture.

Before engaging in comparisons of the kolkhoz and state sectors of Soviet agriculture, it is necessary to restate the leading differences in definition between kolkhoz and state investments. Differing both in price base and coverage, kolkhoz investment figures embody retail prices, capital repairs, and some working capital expenditures and, consequently, are not strictly comparable with state investments. The latter are based on wholesale prices and exclude capital repairs and all working capital items. It is therefore apt to be more misleading than meaningful simply to add kolkhoz and state investments in socialist agriculture. Comparisons of the two sectors, then, are most safely limited to their respective rates of growth (see Table 3**). Even in this respect it is necessary to limit analysis in the kolkhoz sector to kolkhoz money investments, since kolkhoz investments in kind cannot be estimated for each individual year.

If kolkhoz money investments are used as the index of growth for total kolkhoz investments in the comparison, both the state and kolkhoz sectors show a considerable advance in the Fifth over the Fourth Five Year Plan. State agricultural investments from 1946 through 1951 continued to increase each year. After declines in 1947 and especially in 1948, kolkhoz money investments likewise continued to

* Appendix C, Table 7, p. 97, below, shows that kolkhoz indivisible fund investments in money (including livestock money investments) and labor were 41 billion rubles in the Fourth Five Year Plan. The new economic textbook states that kolkhoz indivisible fund investments exclusive of all livestock investments were 40 billion rubles. Therefore, 1 billion rubles of kolkhoz money investments were accounted for in livestock investments.

** Table 3 follows on p. 75.

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Table 3

Comparative Investments in Socialist Agriculture in the USSR
1946-55

Billion Current Rubles					
Year	A <u>a/</u> State Agricultural Investment	B Percentage Increase in Column "A" over Previous Year	C <u>b/</u> Total Kolkhoz Investment	D <u>c/</u> Kolkhoz Money Investment	E Percentage Increase in Column "D" over Previous Year
1946-50	(30.6) <u>d/</u>		58.9	37.0	
1946	(4.0)			7.8	
1947				7.3	-6.5
1948	4.3			(5.6)	(-23.3)
1949	(9.0)	(109.3)		(7.3)	(30.4)
1950	(13.3)	(47.7)	(15.0)	9.0	(23.2)
1951-53	(40.6)		49.5	36.6	
1951	(15.1)	(11.4)		13.2	46.6
1952	(13.5)	(-8.9)		10.9	-17.4
1953	12.0	(-8.8)	(19.2)	12.5	14.7
1954	(18.0)	(50.0)		(16.5)	(32.0)
1955 (plan)				<u>18.0</u>	

a. All estimates from Appendix A, Table 5, p. 85, below.

b. All estimates from Appendix B, Table 6, p. 91, below. Includes total money investments and investments in kind.

c. All estimates from Appendix B, Table 6, p. 91, below. Column D equals indivisible fund monetary investments plus long-term credits.

d. Figures in parentheses are estimates; plan figures are underlined.

advance each year through 1951. Until 1954, 1951 stood as the peak postwar year for both state and kolkhoz money investments. In 1952, however, both state and kolkhoz investments declined in absolute terms. While state investments continued to drop in 1953, kolkhoz money

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investments again rose. In 1954, state agricultural investments and kolkhoz money investments showed impressive gains over 1953, an estimated 50-percent increase for state agriculture and a 32-percent gain for the kolkhozes.

One point that seems to emerge from the comparison is the dependence of kolkhoz investments on the level of their monetary incomes. Both in 1947 and in 1948, kolkhoz money incomes were low, and kolkhoz investments dropped accordingly. The volume of state investments, however, seems to depend consistently on the over-all volume of capital investments in the national economy, as shown in Table 1,* as well as on state economic policy. In more recent years, up until 1953, state agricultural investments tended to average 10 percent of total capital investments in the national economy. In the plan for 1954, presumably in line with a new set of priorities, the share of agricultural investments in total state capital investments rose to 12 percent. In 1952, if the Korean War affected the drop in both state agricultural and kolkhoz investments, then it was state policy that directly influenced the allocations of capital goods in the whole of socialist agriculture for that year.

Although they differ both in coverage and in price bases and hence are not strictly comparable, it is readily apparent that the ruble volume of total kolkhoz investments in every year (except perhaps 1952) has been greater than the ruble volume of state agricultural investments, but that in the Fifth Five Year Plan the ruble volume of state investments has been increasing relative to the ruble volume of kolkhoz investments. Despite the fact that Soviet agriculture is largely defined by the kolkhoz system, with kolkhozes occupying 85 percent of socialized sown area, the state's share of investment requirements in agriculture is substantial. The large share of state investments, in turn, derives from the state's ownership and control of the heavy equipment park in the machine tractor station that services the kolkhozes. Indeed, when it is considered that state agricultural investment rubles are, on a wholesale price basis, worth more than kolkhoz investment rubles, valued in terms of retail prices, it is possible that state agricultural investments in the Fifth Five Year Plan in comparable prices or in terms of the capital goods actually delivered are higher than kolkhoz investments. This hypothesis seems the more probable, since the kolkhoz investments are also inclusive of capital repairs.

* P. 63, above.

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B. Capital Stocks in Socialist Agriculture.

The same strictures and cautions that apply to comparisons of state with kolkhoz investments must be observed in comparisons of state agricultural fixed assets with kolkhoz fixed assets. Capital stocks estimates in the two sectors are based on different price systems and different methods of valuation. Distinctions in definitions were elaborated in II, above, as was the composition of agricultural capital stocks in the postwar period and their respective rates of growth. Table 4 recapitulates the previous discussion in summary form. The tentative nature of these estimates, especially the ones for state agriculture, should again be stressed.

Table 4

Fixed Assets in Socialist Agriculture a/
1940, 1945, and 1948-54

Year	Billion Current Rubles			
	State		Kolkhoz	
	Total	MTS	Fixed Assets	Indivisible Funds
1940	(18.2) <u>b/</u>	8.0	(26.3)	(24.2)
1945	(15.9)	(7.0)		
1948			35.0	
1949				(34.7)
1950	(37.3)	20.4	(43.5)	(38.5)
1951	(47.8)		(48.8)	43.5
1952	(57.3)	31.8	(52.3)	(54.3)
1953	(65.7)			
1954	(78.3)			

a. All assets are in terms of original balance values.

Estimates are from Appendix C, Table 7, p. 97, below.

b. Figures in parentheses are estimates; plan figures are underlined.

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Comparatively, state agricultural capital stocks have been distinguished by more rapid rates of growth than those of kolkhozes. This development has occurred primarily because state investments enjoy a higher ratio of capital investments that become a net incremental value to existing capital stocks. Since substantially all capital investments in machine tractor stations over a short-term period become net additions to capital stocks, the postwar period has experienced an ever-increasing weight of MTS fixed assets in total state agricultural capital stocks. At the present time, MTS assets probably constitute well over half of all capital stocks in state agriculture.

With only 35 to 40 percent of kolkhoz investments becoming a net increment to fixed assets, kolkhoz accumulations in capital stocks grow at a much slower rate than accumulations in the state sector. Although most of the kolkhoz estimates are quite hypothetical, they suggest the impact of the postwar collectivization in the newly acquired territories. Because share capital is a continually diminishing asset, kolkhoz indivisible funds would by now be greater in value than kolkhoz fixed assets accounts if postwar collectivization is excluded. This is so because of the inclusion of some working capital items and cash funds for investment on hand in the indivisible funds. Until 1952, however, the estimates indicate that kolkhoz fixed assets were greater in volume than kolkhoz investments. Presumably, if the estimates are valid, the explanation is the inclusion in the fixed assets accounts of newly created share capital in the areas of postwar collectivization.*

Statistically it is not permissible simply to add state and kolkhoz assets as given in order to arrive at total agricultural capital stocks. Nevertheless, it is instructive to compare the respective values (embodying their different price bases) of capital stocks in the two sectors. State investment rubles being worth more in real terms than kolkhoz investment rubles, it seems clear that the state now possesses a greater share of agricultural fixed capital than the kolkhozes. In the prewar period, on the other hand, the reverse was true. Therefore, because of the greater incremental value of state investments to existing fixed assets and because of the greater worth of a state investment ruble, the state has, for

* See p. 52, above.

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less investment, accumulated a greater share of capital stocks in the postwar period than the kolkhozes. Unless kolkhoz investments in the future increase at a much more rapid rate than state investments, the state will continue to widen the margin of its greater capital wealth in agriculture.

C. Investment Results and Prospects.

Apparently confronted with unanticipated pressing requirements in agriculture, Soviet economic planners were obliged in the postwar period to modify or revise the original terms of both the Fourth and the Fifth Five Year Plans for agricultural capital investments. The Fourth Five Year Plan was supplemented in mid-course by the introduction of the Afforestation Plan and the Three-Year Livestock Development Plan. Midway in the Fifth Five Year Plan, following Stalin's death, Malenkov introduced a new set of agricultural policies incorporating larger and more intensive types of capital investments. Malenkov's fall from power and the establishment of the "new lands" campaign meant a further modification of the original terms of the Fifth Five Year Plan. While Khrushchev's agricultural policies seem to represent a partial return to a more extensive pattern of investments in agriculture, there has been no suggestion that the slightly larger share of agricultural investments in total national economic investments allowed by Malenkov has been repudiated.

Realized capital investment expenditures in state agriculture in the Fourth and Fifth Five Year Plans, except for 1952 and 1953, have shown steady increases from year to year. State agricultural capital investments in the Fourth Five Year Plan are estimated at 31 billion rubles, while for the first 4 years (1951-54) of the Fifth Five Year Plan they are estimated at 56 billion rubles. After the substantial completion of postwar industrial reconstruction, from 1949, state agricultural investments until 1953 tended to average about 10 percent of total state investments in the national economy. In 1953, agriculture's share declined to slightly more than 8 percent, but in 1954 rose to an estimated 12 percent. From 1946 through 1952, state agricultural investments were notable for the high shares devoted to MTS machinery and sovkhoses, to the relative neglect -- despite explicit plan pronouncements -- of expenditures actually directed to projects of general agricultural significance. Although the priority execution of the "new lands" program may upset calculations,

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the new plans for agriculture call for continuing high investments in sovkhozes and for increased investments in MTS construction assets, with general projects probably being maintained at their actual previous share of approximately 10 percent.

Although the rates of growth in kolkhoz capital investments have shown a more erratic behavior from year to year, the yearly investment averages have shown substantial increases in the Fifth over the Fourth Five Year Plan. Kolkhoz investments declined in 1947 and 1948 and shared with state agricultural investments the drop in 1952. Total kolkhoz investments in the Fourth Five Year Plan were 59 billion rubles, while in the first 3 years (1951-53) of the Fifth Five Year Plan they were nearly 50 billion rubles. In the Fourth Five Year Plan, investments in kind constituted 43 percent of indivisible fund investments, but from 1951 through 1953 they averaged only 31 percent. With a steady rise year by year in long-term credit allocations, the latter have progressively been occupying an increasing share in total kolkhoz money capital outlays. In the Fourth Five Year Plan, long-term credits were 27 percent of kolkhoz indivisible fund monetary expenditures, and in the first 3 years (1951-53) of the Fifth Five Year Plan they were 30 percent. An examination of the rates of growth in kolkhoz investments indicates that indivisible fund monetary outlays average nearly 20 percent of kolkhoz monetary incomes. In the Fourth Five Year Plan, livestock investments represented about 21 percent of total kolkhoz indivisible fund investments.

Comparative analysis of state agricultural and kolkhoz investments suggests that kolkhoz investments are directly dependent on the level of kolkhoz monetary income. State agricultural investments, on the other hand, appear to be directly dependent on the over-all volume of capital investments in the national economy and on state policy. Despite the fact that they are based on different ruble values and different coverage, it seems possible to suggest that by the Fifth Five Year Plan state agricultural investments in comparable prices have actually become higher than kolkhoz investments.

State agricultural capital stocks have enjoyed higher rates of growth in their accumulations in the postwar period than kolkhoz capital stocks. At the same time a great share of state investments became net additions to existing fixed assets. For those reasons, it is thought that by the mid-point in the Fifth Five Year Plan, state

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agricultural capital stocks had attained a greater value in real terms than those of kolkhozes.

The foregoing summary of the statistical results of postwar investments in Soviet agriculture did not by itself provide the requisite insights for appraising the most likely possibilities for future investment trends, especially in the long run. Nor did this restricted and specialized study analyze the effects of agricultural investments where they really count -- in the productivity of agriculture. Passing over any elaborate and detailed review of the evidence, it is apparent from the series of official decrees and speeches of the last 2 years that agricultural output -- in particular, its marketed share -- has not kept pace with the requirements of a growing industrial economy whose food consumption demand both in the cities and in the countryside is rapidly mounting. From the point of view of satisfying the nutritional needs of an industrializing population at a moderately high degree, postwar agricultural investments cannot be said to have paid off. The more important and crucial problem, however, is the need to advance agricultural production at a pace in keeping with anticipated population increases in the future.

The failures of the past and the prospects for the future in agricultural productivity are functions of labor incentives as well as the levels of capital investments. It is not only the shortage of suitable types of tractors, for example, but in addition the fact that the tractors are not properly serviced that accounts for the poor performance of the machine tractor stations. Furthermore, the greatest immediate returns in agriculture -- in the established agricultural regions, at any rate -- do not only require advanced machinery but certainly are dependent on the peasant's will to work. For the immediate future, then, the incentive measures adopted in 1953 and 1954 may be equally important in realizing the goals for agricultural production. Still, it cannot be argued that future capital investments in Soviet agriculture will not be of great significance in achieving or failing to achieve the needed gains in agricultural output in the long run. Particularly will that hold true if the incentives offered the agricultural labor force are not maintained and advanced. What, therefore, can be said of the growth prospects for Soviet agricultural investments?

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A great number of factors economic and sociopolitical have set limits in the past on the rate of capital allocations to agriculture. These many traditional limiting factors fall under two headings: technological and institutional. The boundaries imposed by technology are inherent both in the character of agricultural production and in the Soviet resource balance. Productive investments in agriculture, after all, can seldom be of the order of magnitude of investments in a heavy industrial complex, for agriculture's capital needs are by comparison smaller per unit of output, since land is an important productive factor. However, the need for agricultural capital will remain large in the foreseeable future. With the limits of arable land about reached and with declining rates of increase in the labor force, increasing reliance for rising production will have to be assumed by capital investment in machinery and fertilizers. Since a limited resource base must feed and clothe a rapidly increasing population, the value of additional units of productive investments is large and will continue to remain high.

In raising the productivity of agricultural land, the two most effective types of capital investments are fertilizers and irrigation, and the USSR has much need of greater outlays in both. Here, however, the existing resource balance restricts the Soviet investment potential. The USSR's own resources in mineral fertilizers are quite inadequate, but if the traditional reluctance to rely on imports remains operative, the use of fertilizers on a very grand scale does not seem to be in prospect without extensive investment in synthetic fertilizer production facilities. As for irrigation, it is not a practical measure as extensively applied to grain crop areas, because of the prohibitively high costs and the impossibly large scale of the irrigation nets that would have to be employed in servicing areas sown to grains. In practical terms, although greater investments in fertilizers and irrigation are required and undoubtedly will be made, neither promises to offer a sufficient solution to the agricultural problem, and both will probably be held to low limits set by costs and relative resource priorities.

The institutional factors curbing the Soviet agricultural investment potential, from the administration of investment funds to the forms of agrarian society, all hinge on state policy. It comes first of all to mind that state economic policy has traditionally accorded the top priorities in the allocation of capital

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goods to heavy industry and defense. Agriculture and consumer industries, on the other hand, have received only marginal allocations, and those for the most part on a residual priority basis. This study has shown that, as Soviet spokesmen beginning in 1953 publicly recognized their agricultural situation to be critical, the USSR has allowed a slightly greater share for agricultural investments in total national economic investments. It is doubtful, nevertheless, if this greater share is being allowed at the expense of either heavy industry or defense. Rather, public pronouncements stress the dependence of agriculture on heavy industrial output for its expansion. If they wish to maintain in the interest of caution their defense posture, Soviet leaders cannot envisage a scale of agricultural investments that would hold back the rates of growth of either heavy industry or defense. Of course, if the agricultural situation became really desperate, through repeated crop failures, for instance, the traditional priorities might be marginally modified. The arguments that have been made for the substantial continuance of the priorities system probably apply equally well to the traditional Soviet aversion to the importation of agricultural capital goods, especially imports of fertilizers. Again, this will depend to a large extent on how critical they judge their agricultural situation to be.

Two leading limiting considerations stem from the analysis made in the first chapter regarding the administration of investment funds in Soviet agriculture. The considerations go straight to the root of the social formations and values by which agrarian society is controlled. The first is the investment ceiling that derives from a concept of capital investments in agriculture, in both the state and the kolkhoz sector, that is largely exclusive of nonproductive investments. State agriculture and kolkhozes make practically no investments in housing, the principal component of industrial nonproductive investments. The second limiting consideration is the fact that the state does not make direct investments in kolkhoz agriculture (apart from a small share of the long-term credits, which must be paid back in any case). There is no question that if agricultural investments were redefined to include housing for agricultural workers and if the state were willing to foot the large bill, total agricultural investments could grow considerably in a very short period of time or the productive portion would substantially fall. Similarly, if the state were to make productive investment grants directly in kolkhozes without reducing disposable kolkhoz incomes and necessarily

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at the expense of investments elsewhere, then the potential for expanding agricultural capital investments would become much broader indeed. But either of these last two possibilities would impinge on the traditional set of state economic priorities and even on established social values, which brings this analysis by a circuitous route to the point from which it started and shows, incidentally, how broad the implications of such changes would be. Another means, of course, by which the state could effect greater investments in the kolkhoz sector would be to offer the kolkhozes higher delivery prices than they currently receive for their marketed agricultural output. Again, on a large scale, this could only happen at some cost to other vital sectors of the economy and is a move that is likely to be made only under the greatest duress.

To sum up the discussion thus far, it has been concluded that the traditional technological and institutional factors still describe, and for the near future, at any rate, will continue to describe, the limits of growth for agricultural capital investments. Agricultural investments, in all probability, will continue to grow in the near future at a rate more or less dependent on the growth of the economy as a whole and not substantially more rapidly than total investments in the national economy. The firmest evidence for this conclusion must rest with the preceding analyses of the nature and purpose of the post-Stalin agricultural plans, in particular with the designs of the program associated with Khrushchev. It will be recalled that apart from the slightly increased share in total investments now being accorded agriculture, the new agricultural programs do not appear to foreshadow a reversal of traditional priorities for heavy industry or defense. Nor do they envisage, on the surface at least, any contemplated changes in the structure of agrarian society. On the contrary, they give every evidence of being an attempt to consolidate the kolkhoz system and further improve its viability. Anything could happen, of course, and the attempt to break the present bottleneck in Soviet agriculture could even break the bottle itself. Predictions, however, are most safely restricted in this case to Soviet intentions, and the latter patently are confined to changes of a much less sensational variety.

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APPENDIX A

STATE AGRICULTURAL INVESTMENTS IN THE USSR

1946-56 a/

Table 5

Billion Current Rubles											
A	B	C	D	E	F	G	H	I	J	K	L
Budget Appropriations b/											
Year	Total	MTS c/		Sovkhoz d/		General Agricultural Projects			To Agriculture and Forestry	"J" as a Percent of Financing National Economy	Total Capital Investment
		Total	Machinery	Construction	Total	Livestock	Total	Afforestation	Irrigation		
1946-50 (plan) e/ f/	19.9	8.8	(7.0)	(1.8)	(7.1)	(2.0)	(4.0)		2.0		
1946-50 (actual)	(30.6)										
1946-52 (actual) g/	(59.2)	(26.1)	(24.0)	2.1							
1946-47 (actual) h/	(4.0)										
1948 (actual) i/	4.3							0.1		20.5	52.7
1949 (plan) j/	9.2							0.8		13.9	
1949 (actual) k/	(9.0)					2.3				21.4	79.8
1950 (plan) l/	15.7	(8.2)	(6.6)	(1.6)	(5.0)	3.7	(2.5)	1.5		19.0	
1950 (actual) m/	(13.3)									22.3	106.5
1951-55 (plan) n/	2.1 times greater than 4th FYP							4 times greater than 4th FYP		22.0	
1951-55 (actual)	(79.6)										
1951 (plan) o/	(16.9)										
1951 (actual) p/	(15.1)									39.0	98.0
1952 (plan) q/	(14.7)									20.7	
1952 (actual) s/	(13.5)									19.2	98.1
1953 (plan) t/										18.7	
1953 (actual) u/	12.0	5.1	4.5	0.6	(5.9)		(1.0)			33.5	106.7
1954 (plan) w/	21.0	9.3	6.0	3.3	(9.5)		(2.0)			(40.4)	
1954 (actual) y/	(18.0)				(7.3)					N.A. v/	
1955 (plan) z/	(21.0)	(9.5)	(6.0)	3.5	(9.1)		(2.4)			(52.0) x/	116.3
1955 (actual) bb/	(21.0)									N.A.	
1956 (plan) cc/				3.8						55.1 aa/	109.3

a. Figures in parentheses are estimates; plan figures are underlined.

b. Under Financing the National Economy. All figures exclude enterprises' internal funds.

c. Includes repair stations.

d. Includes subsidiary farms of state nonagricultural enterprises.

e. In 1945 prices. Includes noncentralized investments.

f. 1946-50 (plan):

A. 130/

B. 131/

C. B minus D.

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Table 5
(Continued)

- D. In 1937-40 it is estimated that the fixed assets of machine tractor stations outside the machinery and equipment category were about 20 percent of the total value of MTS fixed assets (see Table 7, p. 97, below). It should be safe to assume that, in the interest of only moderately reasonable efficiency, the plan called at least for the old ratio to be maintained. Therefore, let 20 percent of the total capital investments plan for machine tractor stations be assigned to construction.
- E. Residual calculation; A minus the sum of B plus G.
- G. The Fourth Five Year Plan specified that 2.0 billion rubles were to be invested in irrigation and afforestation projects. The only other major type of construction under the category of projects of general agricultural significance is electrification. It is doubtful that the plan for electrification was to be as large an outlay as for afforestation and irrigation. In 1949, for example, total outlays for rural electrification, including kolkhoz investment, came to only 1 billion rubles. ^{132/} This low level of investment occurred after considerable price inflation had taken place. Furthermore, at least half of the investment for electrification in 1949 probably was financed by kolkhozes. Therefore, as a kind of upper limit, allow 2 billion rubles for electrification and all other projects of general agricultural significance, and add that amount to H-I. However rough this estimate, it is apparent that the Fourth Five Year Plan called for sizable investments in sovkhoses, as can be seen by subtracting B plus G from A.
- H-I. ^{133/}
- g. 1946-52 (actual):
- B. Source ^{134/} states that actual expenditures for MTS construction during the period 1946 through 1952 came to less than 10 percent of the value of machinery and equipment delivered to machine tractor stations during this period. It is further stated that the plan for MTS construction 1954 through 1956 of 10.5 billion rubles is five times greater than actual construction expenditures during the period 1946-52. "Less than 10 percent" here is taken to mean roughly 9 percent.
- C. B minus D.
- D. See B, above.
- h. 1946-47 (actual):
- A. No precise quantitative relationships can be drawn on the basis of either budgetary appropriations or heavy machinery allocations in these years. It is a fact, however, that allocations of heavy machinery (tractors, trucks, combines) in 1946 and 1947 could hardly be more taken together than for 1948 taken alone. On the other hand, the requirements for restoration investments in the formerly occupied areas were very large, and the state must have allocated at least a small amount for construction on this score. In 1948, when heavy machinery allocations to agriculture were just getting under way and when more construction materials were also available for agriculture, it is possible that capital investments were as great as the total for the 2 preceding years. Rising prices may partially support this guess.
- i. 1948 (actual):
- A. ^{135/}
- B. Investment in connection with afforestation for 1950 is 15 times greater than for 1948. ^{136/}
- j. 1949 (plan):
- A. ^{137/}
- H. ^{138/}
- k. 1949 (actual):
- A. The source states that the volume of capital works in MTS and sovkhoses in 1950 was 148 percent of 1949. ^{139/} Machine tractor stations and sovkhoses do not cover all state agricultural investments, but together they are by far the larger share. As a rough approximation, therefore, let MTS and sovkhos investment growth determine the rate of growth in this year for all of state agriculture.
- F. See I, F, below.
- l. 1950 (plan):
- A. ^{140/}
- B. Add C plus D.
- C. All of the estimates comprising the breakdown of the 1950 plan are doubtless highly arbitrary, speculative, and susceptible to corrective analysis. Nevertheless, with scattered quantitative data and some knowledge of Soviet administration, it is believed to be worthwhile to make some guesses. Apart from the estimated composition of the Fourth Five Year Plan, 1950 is the only year until 1953 for which there is enough data to attempt even the kind of guesswork that goes into this breakdown. The first piece of evidence is Benediktov's budget debate speech. ^{141/} Benediktov stated that the total budgetary appropriation for capital investments for the Ministry of Agriculture was 9 billion rubles. He further stated that 7 billion rubles of the 9 billion rubles was for tractors and all other machinery. Now apart from the very few sovkhoses under the Ministry of Agriculture, the only recipients of this machinery would be machine tractor stations, construction organizations attached to the Ministry of Agriculture, and afforestation stations attached to the Ministry of Agriculture. The machine tractor stations, of course, are far and away the largest consumer, and it is probably reasonable to assume, for that reason, that machine tractor stations were to get 6 billion rubles of the 7 billion rubles worth of machinery to be allocated to the Ministry of Agriculture. The second piece of evidence is even more indirect. In 1952, machine tractor stations of the Ministry of Cotton Growing received one-tenth of the total budgetary appropriation to machine tractor stations. ^{142/} It does not seem unreasonable, proceeding from this fact, to assume that investment requirements of the machine tractor stations of the Ministry of Cotton Growing are about 10 percent of the MTS total. Admittedly, this argument has enormous assumptions built into it, but no other evidence appears to be available. Therefore, let total MTS machinery allocations equal 6.6 billion rubles. Since machine tractor stations are a gross entry in the budget, the budgetary appropriation for their machinery is for all practical purposes equal to total investment in machinery (see I, 3, of this report, p. 20, above).

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Table 5
(Continued)

- D. Essentially, this is a residual calculation. In C, above, it was shown that the total budgetary appropriation for capital investments to the Ministry of Agriculture was 9 billion rubles. Of that sum, 6 billion rubles were estimated to have been earmarked for MTS heavy machinery. The next step is to estimate what share of the afforestation allocation is borne by the Ministry of Agriculture. According to the terms of the Afforestation Decree, between 1949 and 1951, 570 afforestation stations were to be built, 270 by the Ministry of Agriculture and 300 by the Ministry of the Forestry Economy. ^{143/} Letting the number of stations serve as the index, it may be assumed that the Ministry of Agriculture was responsible for 47 percent of the total outlay for afforestation. In 1950 the total state appropriation for afforestation was planned to be 1.5 billion rubles. ^{144/} Let, therefore, 0.7 billion rubles be the share of afforestation investment for the Ministry of Agriculture. (It is assumed that afforestation carried out by sovkhozes of the various ministries on their own lands is not included in the above total.)
- So far, the estimates account for 6.7 billion rubles of the 9 billion rubles assigned to the Ministry of Agriculture in 1950 for capital investments. The third step is to make a reasonable guess for the requirement in electrification, irrigation, and all other investments, excluding afforestation, of general agricultural significance. A very generous estimate would seem to be 1 billion rubles. None of the great projects, like the Main Turkmen Canal, had by this time taken very large outlays. Projects like the Volga-Don Canal, of course, were transportation investments. Of this 1 billion rubles, let one-tenth be assigned to the Ministry of Cotton Growing, leaving 0.9 billion rubles as the share for the Ministry of Agriculture.
- The estimates now account for 6.0 plus 0.7 plus 0.9 billion rubles of the 9 billion rubles assigned to the Ministry of Agriculture. Let the remaining 1.4 billion rubles be assigned for planned construction outlays for machine tractor stations subordinate to the Ministry of Agriculture. Now add 10 percent to the 1.4 billion rubles for construction outlays in machine tractor stations of the Ministry of Cotton Growing, for reasons described in C, above.
- E. A minus the sum of B plus G. This estimate may be too low. It is simply derivative after having made estimates for the other categories of investment in 1950.
- F. Zverev states that in connection with the Three-Year Livestock Development Plan for the "development of communal kolkhoz and sovkhoz livestock in 1950 are allocated 3.7 billion rubles or 61 percent more than last year." ^{145/} This figure apparently does not include kolkhoz investment, because the budgetary allocation under Financing the National Economy excludes it. Nor does Zverev appear to be including the budgetary share of long-term credits, for he deals with long-term credits separately in the next sentence.
- G. See D, above.
- H. ^{146/}
- m. 1950 (actual):
- A. The method used here for estimating total state agricultural investments from 1950 actual through 1952 actual is the same. In the absence of any meaningful direct data on state agricultural investments for these years, a hypothesis is set up that posits a direct relationship between state agricultural investments and their fulfillment and budgetary allocations to state agriculture and their fulfillment. Enormous assumptions underlie the use of such a hypothesis, so that special conditions of the different agricultural years are overlooked except as the budget reflects them. Still, one principle of Soviet financial administration tends to support the hypothesis. As was pointed out in the first section of this report, practically all state agricultural investments are financed exclusively through the budget. Thus increases or decreases in budgetary plans and fulfillments for agriculture should tend to reflect investment changes, although to what degree cannot be determined precisely.
- In addition to reflecting investment changes, budgetary allocations to state agriculture should also reflect the dynamics of one other principal factor -- namely, the cost levels of MTS operations. Since the volume of work done by machine tractor stations has been continually expanding each year since the war, it is assumed here that increases or decreases in planned budgetary allocations to state agriculture are equally influenced by the planned cost levels of MTS operations. Of course, the planned cost level of all operational expenditures is the critical factor, but in the absence of specific data it must be further assumed (1) that MTS operational expenditures are the largest operational expenditures in the state agricultural budget, and that only price reductions can hold back their continual expansion; and (2) that since 1950 it has been the intention of Soviet planners to reduce or maintain at the same level all other operational expenditures, many of which are largely administrative.
- As an admittedly very rough rule of thumb the hypothesis used here assumes, then, that changes in planned budgetary allocations are half attributable to changes in operational expenditures and half attributable to capital investments.
- With respect to budgetary plan fulfillment, however, another set of assumptions is applied. It is a well known fact that machine tractor stations chronically underfulfill both the planned volume of work and the unit cost norms for its completion. It is also relatively certain that administrative costs in agriculture are seldom kept below planned allocations. As a minimum statement, therefore, it is assumed that underfulfillment of the budgetary appropriation to agriculture is not attributable to the nonutilization of allocations for operational expenditures. That leaves investment. Thus the hypothesis assumes, finally, that the shortfall between plan and actual budgetary appropriations defines the shortfall in fulfillment of the capital investment plan.
- However rough and unsophisticated these calculations, and however gross the assumptions underlying them, they, at least, almost certainly do not overstate the volume of state agricultural investments. They are more likely to err on the side of understatement. The method used here attempts only to set up estimates that will surely be refined by the release of more official data or by more intensive research on some new method.

Table 5
(Continued)

- Now to the estimate for actual state agricultural capital investments in 1950. The budgetary appropriation for agriculture in 1950 was underfulfilled by 2.4 billion rubles. Therefore, let this amount determine the underfulfillment of the investment plan in 1950. Note that this monetary underfulfillment is not a measure of real underfulfillment, since in 1950 price cuts for capital goods and working capital items were reduced from 10 to 15 percent, and over-all construction costs were planned to be reduced by 20 to 25 percent.
- n. 1951-55 (plan):
 - A. 147/
 - H-I. 143/
 - o. 1951 (plan):
 - A. The planned budgetary appropriation to agriculture in 1950 is 36.6 billion rubles, and in 1951 the planned appropriation is 39.0 billion rubles. Let half of the difference, 1.2 billion rubles, determine the increase in the investment plan in 1951 over 1950. See m, A, above, for a discussion of this method of estimating.
 - p. 1951 (actual):
 - A. The budgetary appropriation for agriculture was underfulfilled in 1951 by 1.8 billion rubles. Let this amount determine the underfulfillment of the investment plan in 1951. Note the estimated rise in state agricultural investments for this year, both plan and actual, despite the price cuts taking effect from 1950 forward. It may be suggested that the rise is in part accounted for by greater inputs, by this time, to the great Stalin projects. See m, A, above, for a discussion of this method of estimating.
 - q. 1952 (plan):
 - A. The planned budgetary appropriation to agriculture in 1951 is 39.0 billion rubles, and in 1952 the planned appropriation is 34.7 billion rubles. Let half of the difference, 2.2 billion rubles, determine the decrease in the investment plan in 1952 relative to the investment plan in 1951. This marked drop in the appropriation in 1952 may reflect investment cutback as a result of tight supply of materials and lagging investment priorities induced by the requirements of the Korean War. See m, A, above, for a discussion of this method of estimating.
 - r. Includes 17.0 billion rubles for machine tractor stations and afforestation stations.
 - s. 1952 (actual):
 - A. The budgetary appropriation for agriculture was underfulfilled in 1952 by 1.2 billion rubles. Let this amount determine the underfulfillment of the investment plan in 1952. See m, A, above, for a discussion of this method of estimating.
 - t. 1953 (plan):
 - J. In 1953 it was announced that 39.9 billion rubles were to be allocated to Agriculture and Procurement. In addition, there was to be allocated to agriculture 13.6 billion rubles, including 4.1 billion rubles in reduced agricultural taxation. 149/ Thus total allocations to Agriculture and Procurement were 49.4 billion rubles (that is, 39.9 plus 13.6 minus 4.1). Of the latter sum, it can be estimated that 9 billion rubles were allocated to Procurement.
 - u. 1953 (actual):
 - A. 150/ This figure does not appear to be consistent with the estimated relationships drawn between investments and budgetary appropriations in previous years. If the ranges of the previous estimates for state agricultural investments are correct, any explanation of the changed relationships in 1953 would have to include the following factors: (1) cutbacks in long-term, delayed-return projects; (2) greater requirements in working capital in anticipation of larger investment outlays in 1954; and (3) greater operational expenditures connected with new incentive-promoting measures introduced in 1953.
 - B. C plus D.
 - C. See w, C, below.
 - D. 151/
 - E. A minus the sum of B plus G.
 - G. Arbitrarily estimated at 1 billion rubles, on the basis of supposed cutbacks in long-term projects.
 - v. Includes 20.2 billion rubles for machine tractor stations and afforestation stations.
 - w. 1954 (plan):
 - A. 152/
 - B. C plus D. In an article, Zverev states: "For capital investments in agriculture there will be allotted supplementarily about 9 billion rubles (that is, 9 billion rubles more than in 1953); for the improvement of the work of MTS and agroservicing of kolkhozes, more than 6 billion rubles, for the further development of animal husbandry, about 12 billion rubles." 153/ Since the total increase in MTS allocations was 10.2 billion rubles, and since this sentence indicates that an increase of 6 billion rubles is to be devoted to improving the work of machine tractor stations, it follows that the remaining increase of 4 billion rubles is devoted to investment in machine tractor stations, and is accounted for in capital investment figures. The 12 billion rubles for sovkhos livestock is taken to include increases in both investment and working capital for that livestock.
 - C. "The Soviet budget sets aside more than 6 billion rubles this year 1954/ for new equipment for this country's machine and tractor depot. This is nearly one-half more than last year." 154/ Taking into consideration B, above, and the allocation to be made for MTS construction, the increase in the machinery category is estimated to be one-third.
 - D. 155/
 - E. A minus the sum of B plus G.
 - G. Estimated to have increased on the basis of the "new lands" program, which may well have involved initial investment in this category for planning, surveying, and other land construction.

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Table 5
(Continued)

-
- J. It is estimated that of the announced 62.5 billion rubles to Agriculture and Procurement, 52.0 billion rubles was to go to Agriculture. 156/
- x. Includes 30.8 billion rubles for machine tractor stations and afforestation stations.
- y. 1954 (actual):
- A. In part based on the probability that increments to the livestock herds will not be as large as planned. In part, also, it is based on the probability that not all of the priorities shifted to agriculture were capable of implementation in 1954, the first year since 1951 to embody such a large plan for state agricultural investments. Note, finally, that the agricultural investment plan at mid-year 1954, despite significant increases over 1953, had not been fulfilled.
- E. Investments of the Ministry of State Farms were 5.3 billion rubles. 157/ It is arbitrarily estimated that an additional 38 percent was invested in other sovkhoses and subsidiary farms.
- z. 1955 (plan):
- A. Estimated on the basis of budgetary allocations relative to 1954.
- B. C plus D.
- C. Estimated to be planned about the same as in 1954.
- D. 158/
- E. Investment in sovkhoses of the Ministry of State Farms is to be 6.6 billion rubles. 159/ It is estimated that an additional 38 percent is planned for investments in other sovkhoses and subsidiary farms.
- G. Estimated to have increased slightly on basis of planned irrigation of cotton-growing areas.
- aa. Includes 32.6 billion rubles for machine tractor stations and afforestation stations.
- bb. 1955 (actual):
- A. To some extent based on past performance and to some extent on the "hunch" that the USSR will be fortunate if it reaches the goal set for 1954 in 1955.
- cc. 1956 (plan):
- D. 160/

APPENDIX B

KOLKHOZ INVESTMENTS AND FIXED ASSETS IN THE USSR a/
1937-40 and 1946-55

Table 6

Billion Current Rubles ^{b/}													
	A	B	C		D	E	F	G	H	I	J	K	L
	Indivisible Funds ^{c/}												
	Kind												
Year	Total (B + E)	Money	Labor	Livestock	Total (C + D)	Credit	Total Money (B + F)	Total (A + F)	Money Income	Replenishments to Indivisible Fund	Fixed Assets	Indivisible Fund	
1937 (actual) d/									14.2		17.1		
1938 (actual) e/						0.8			16.8		20.6	(19.6)	
1939 (actual) f/									18.3	(2.6)	(22.9)	21.7	
1940 (actual) g/	(7.8)	4.7			(3.1)	0.8	5.5	(8.6)	20.7	4.0	(26.3)	(24.2)	
1946-50 (plan) h/	38.0												
1946-50 (actual) i/	51.0	29.1	41.0	11.9	10.0	21.9	7.9	37.0	58.9				
1946 (actual) j/		7.3				0.5	7.8						
1947 (actual) k/		6.7				0.6	7.3		21.7			1/	
1948 (actual) m/		(4.5)				1.1	(5.6)			3.4	35.0		
1949 (actual) n/		(4.6)				2.7	(7.3)					(34.7)	
1950 (plan) o/						3.8							
1950 (actual) p/	(12.0)	6.0	9.5	3.5	(2.5)	(6.0)	3.0	9.0	(15.0)	(34.8)	(43.5)	(38.5)	
1951-53 (actual) q/	41.0	28.1	(37.0)	(8.9)	(4.0)	12.9	8.5	36.6	49.5				
1951-52 (actual) r/		18.4		(3.7)									
1951 (plan) s/						3.5							
1951 (actual) t/		10.2				3.0	13.2		38.4		(48.8)	43.5	
1952 (plan) u/						3.6							
1952 (actual) v/		8.2				2.7	10.9		(42.8)		(52.3)	(54.3)	
1953 (plan) w/	17.0					3.5							
1953 (actual) x/	(16.4)	9.7	(5.2)	(1.5)	(6.7)	2.8	12.5	(19.2)	49.6				
1954 (plan) y/						3.9							
1954 (actual) z/		(12.4)				(4.1)	(16.5)						
1955 (plan) aa/		12.8				5.2	18.0						

a. Figures in parentheses are estimated; all plan figures are underlined.

b. Assets are in terms of original balance values.

c. Inclusive of capital repairs and some working capital expenditures.

d. 1937 (actual):

I. 161/

K. 162/

e. 1938 (actual):

F. 163/

I. 164/

K. Shkarednyy 165/ states that fixed assets of kolkhozes in 1939 amounted to 20.6 billion rubles, and Anisimov 166/ states that on 1 January 1939 fixed assets of kolkhozes amounted to more than 20 billion rubles. Thus Shkarednyy's figure of 20.6 billion rubles applies to 1938 -- that is, the inventory date of 1 January 1939.

L. Let L stand to K in 1938 in the same ratio as in 1939.

Table 6
(Continued)

- f. 1939 (actual):
- I. 167/
 - J. Source 168/ states that in 1939 average deduction per kolkhoz for the indivisible fund was 10,989 rubles. Therefore, $10,989 \times 241,000$ (approximate number of kolkhozes) equals 2.6 billion rubles.
 - K. In most years the net incremental value of capital investments in kolkhozes to fixed assets approximates 35 to 40 percent. Therefore, to determine the value of fixed assets in 1939, subtract 40 percent of investments in 1940 from fixed assets in 1940.
 - L. 169/
- g. 1940 (actual):
- B. G minus F.
 - E. Calculated on the assumption that in 1940 investments in kind were 40 percent of indivisible fund investments. Some estimate is required here in order to calculate the value of indivisible funds and fixed assets in 1939 and 1940. The margin of error could be wide.
 - F. Source 170/ states that in 1940 long-term credits were 14.2 percent of total money investments in kolkhozes.
 - G. Source 171/ states that total monetary investments per kolkhoz in 1940 were 23,200 rubles. Therefore, $23,200 \times 240,000$ (number of kolkhozes) equals 5.5 billion rubles. Number of kolkhozes from source 172/.
 - I. 173/
 - J. Source 174/ states that in 1940 deductions to the indivisible funds amounted on the average to 16,800 rubles per one kolkhoz. Therefore, $16,800 \times 240,000$ (number of kolkhozes) equals 4.0 billion rubles. Number of kolkhozes from source cited in G, above.
 - K. It has been stated that during the 5 prewar years kolkhoz fixed assets grew 2-1/2 times. 175/ At the end of 1935, fixed assets are given in 1926-27 prices at 8,037.5 million rubles. Increments to fixed assets during 1935 in constant rubles were 753.2 million rubles. 176/ Capital investment in kolkhozes in 1935 in current rubles was 2,462.2 million rubles. 177/ Assuming that 40 percent of investments became fixed assets in 1935, increments to assets can be translated into current prices, and the same ratio (1.31:1) of current to constant prices can be applied to the value of fixed assets in 1935. This gives 10,529 million rubles, and, when multiplied by 2-1/2, gives 26.3 billion rubles.
 - L. Source 178/ states that during the course (v techenie) of 1939 and 1940 the indivisible funds of kolkhozes grew by 23.5 percent.
- h. 1946-50 (plan):
- A. It is possible that this plan figure 179/ is money and labor investment only. This more limited coverage appears possible because up until 1954, with the publication of the new economic textbook, all indivisible fund fulfillment data excluded livestock investments in kind. See 1, B-C, below.
- i. 1946-50 (actual):
- A. Until the appearance of source 180/ it was not known that previously published figures on postwar indivisible fund expenditures had excluded livestock investments in kind. Especially does this omission apply to the figure 41.0 billion rubles in B-C, below. As a result kolkhoz investments have hitherto been generally underestimated. It is not known specifically why previously published figures have not taken into account livestock increments in kind. The likeliest conjecture, though, would seem to be the following combination of factors: (1) low values attached to head of kolkhoz livestock; (2) poor performance in the execution of the livestock reproduction plans; and (3) the simple administrative difficulty in making a count of national coverage.
 - B. Source 181/ states that the share of long-term credits in capital expenditures of kolkhozes in 1946 was 6.4 percent, but that by 1950 this share had risen to 17.5 percent. It seems clear from these percentages that the source is talking about money expenditures only and also that long-term credits from 1946 through 1949 accumulated to amount to 17.5 percent of money capital expenditures over those years. The balance of 82.5 percent is the sum of money expenditures from indivisible funds. Add 6 billion rubles in monetary expenditures from indivisible funds in 1950, and the result will yield total monetary expenditures from indivisible funds for the Fourth Five Year Plan.
 - B-C. 182/
 - C. B-C minus B.
 - D. A minus B-C.
 - F. 183/
- j. 1946 (actual):
- B. If in 1946 long-term credits of 0.5 billion rubles were 6.4 percent of total monetary expenditures of kolkhozes, then 93.6 percent equals 7.3 billion rubles, the amount remaining for indivisible fund monetary expenditures. See 1, B, above.
 - F. 184/

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Table 6
(continued)

- k. 1947 (actual):
B. Kolkhozes' own investments for the 2 years 1946 and 1947 were 14 billion rubles, exclusive of labor investments in kind. 185/ It must be assumed, it seems, that the 14 billion rubles, besides being exclusive of labor investments in kind, also do not take into account livestock increments in kind. Reasons for so thinking are that until 1954 other indivisible fund fulfillment data for the Fourth Five Year Plan and for 1950 were exclusive of livestock investments in kind, and the high monetary investments in 1946 suggest that it is surely possible that the 14 billion rubles for 1946 and 1947 taken together is a pure monetary figure.
- F. 186/
I. 187/
L. Source 188/ states: "Only from 1939, when the value of the indivisible funds amounted to 22 billion rubles, up to 1948 they had increased almost twice." Usually when the value of the indivisible fund is given, it is for 1 January of the year mentioned. It has been stated elsewhere that indivisible funds rose 60 percent from 1 January 1940, when they amounted to 21.7 billion rubles, to 1 January 1950. Therefore, it is assumed that the statement misunderstood the data and should be referring to indivisible funds of 1 January 1939 which are estimated at 19.6 billion rubles and might very well have "almost" doubled by 1 January 1948. However, it is difficult to be sure of the meaning in this statement, and hence it is believed to be better not to attempt an estimate for this year.
1. See k, L, above.
m. 1948 (actual):
B. Given kolkhoz monetary expenditures from indivisible funds for the 4 years 1946-49, and having derived estimates for those expenditures in 1946 and 1947, 1948 and 1949 may be taken together as a residual. Assume that kolkhoz monetary incomes in 1948 and 1949 as a source of investment in 1948 and 1949 must have been very close to the same level. Then let the residual (1948 and 1949) indivisible fund monetary expenditures be divided very nearly in half, allowing for only a slight rise in 1949. On kolkhoz monetary income in 1948, see source 189/.
- F. 190/
J. 191/
K. 192/
n. 1949 (actual):
B. See m, B, above.
F. Source 193/ states that the long-term credit grants in 1949 were more than for the entire Second Five Year Plan, his figure for the latter being 2.6 billion rubles. Also, source 194/ states that the plan of 3.8 billion rubles in long-term credits for 1950 was 41.8 percent more than actual long-term credits in 1949.
L. Source 195/ states that by 1950 indivisible funds of kolkhozes were 1.6 times greater than in 1940 -- in this case, presumably on 1 January 1940 -- the inventory date for 1939.
- o. 1950 (plan):
F. See n, F, above.
p. 1950 (actual):
B. Source 196/ states that in 1950 the share of long-term credits in total monetary capital expenditures of kolkhozes was 50 percent. This statement implies that if long-term credits were 3 billion rubles, then indivisible fund monetary expenditures were 3 billion rubles. Apparently, then, the sentence must be interpreted to mean that the value of long-term credits is equal to 50 percent of the value of indivisible fund monetary expenditures and that the writer has stated the meaning of the data misleadingly.
- B-C. 197/
C. B-C minus B. The 3.5 billion rubles for labor investments in kind in 1950 is high in relation to the average share of labor investment in indivisible fund investment for the Fourth Five Year Plan as a whole. Still, there is no sound reason for rejecting the data from which this estimate derives. It is possible that a drive to complete unfinished construction in the final year of the Fourth Five Year Plan would help to account for the high labor investments estimated for 1950. Although the money outlays are recorded as they are spent, the accumulations from kolkhoz labor participation in construction probably are often not valued until the completion of the project. See p. 33, above.
D. Although for the Fourth Five Year Plan as a whole, livestock investments in kind were 34.4 percent of monetary outlays from the indivisible fund, the proportion varies in any given year with agricultural and financial conditions. Similarly, as the firm data for 1950 indicate, labor investments in any given year can vary considerably from the average for a group of years. Since all components

Table 6
(Continued)

- of indivisible fund investments in 1950 are known except livestock increments in kind, it is considered reasonable to make an estimate for the missing component in order to derive an estimate for total indivisible fund outlays in 1950. Therefore, if 1950 was the peak postwar agricultural year, let livestock investments in kind for that year be 42 percent of monetary indivisible fund investments.
- F. 198/ Also source 199/ states that long-term credit allocations in 1950 were three times greater than in 1948.
- I. 200/
- K. Source 201/ states that fixed means of production of kolkhozes up to 1951 had increased by 90 percent in relation to 1940 (1 January 1940).
- L. Source 202/ states that kolkhoz indivisible funds increased by 11 percent during 1950.
- q. 1951-53 (actual):
- A. 203/
- B-C. Source 204/ states that kolkhozes' own investments in this period were 36 billion rubles, exclusive of livestock investments, which were more than 5 billion rubles. It can also be calculated 205/ that livestock money expenditures in the Fourth Five Year Plan were about 1 billion rubles out of total livestock capital expenditures of 11 billion rubles (money and in kind). Since in the period 1951-53 kolkhoz purchases of private livestock probably were greater than during 1946-50, a greater share of monetary investments in total livestock investments is allowed for the later period, about 20 percent. Therefore, 1 billion rubles are added to the 36 billion rubles referred to above.
- C. E minus D.
- D. See B-C, above.
- E. A minus B.
- r. 1951-52 (actual):
- B. Nosyrev, a Sel'khozbank official, states that the share of long-term credits in capital expenditures of kolkhozes during the 2 years 1951 and 1952 was on the average for the USSR nearly 23.7 percent. 206/ From this percentage ratio it seems clear that Nosyrev is referring to kolkhoz money capital investments alone. As a bank official, it is only the money outlays over which Nosyrev would be likely to have direct statistical controls. Furthermore, when he refers to the share of long-term credits in kolkhoz capital expenditures from 1946 through 1949, Nosyrev is almost certainly referring to money outlays alone. See i, B, above.
- C. The estimates for C in 1951-52 and in 1953 are perhaps the most unreliable in the table. They are derived from rather ambiguous statements of Anisimov. 207/ Anisimov states that "capital investments for the acquisition of livestock, stocks, and construction" increased 54 percent during the 2 years 1951 and 1952. From the context it is not certain from which base Anisimov made his calculation, from the investment level of 1950, or from the accumulated investment level of the Fourth Five Year Plan, or from some other base. After trying all apparent alternatives, it has been concluded that Anisimov had in mind the investment level for the Fourth Five Year Plan (41 billion rubles, in this case). Since money investments from kolkhoz indivisible funds for 1951-52 (18.4 billion rubles) are known, the 3.7 billion rubles are a residual. It can be argued that Anisimov's coverage does not include labor investments, but the context argues against this. If the 54-percent increase is applied to money alone, the result is incompatible with what is already known about the volume of money investments in these years. It is possible, though, that Anisimov's coverage is incomplete. Note that the share of labor investment allowed by this estimate is low compared to the average for 1951-53. The priority attached by the Malenkov government in 1953 to kolkhoz construction labor may partly explain the much larger share allowed by the estimate for that year.
- s. 1951 (plan): 208/
- t. 1951 (actual):
- B. Given the sum of kolkhoz indivisible fund monetary outlays for 1951 and 1952 taken together (18.4 billion rubles), and given indivisible fund monetary outlays in 1952 (8.2 billion rubles), subtract the latter from the former. Note that this leaves a large amount of kolkhoz money indivisible fund expenditures in 1951 relative to kolkhoz money income in 1951. However, there is no apparent reason for rejecting the data as given.
- F. Source 209/ states that unutilized credits in 1951 amounted to 0.5 billion rubles.
- I. Anisimov states that kolkhoz monetary income in 1951 increased by 86.17 percent in relation to 1940. 210/
- K. Source 211/ states that from 1940 (1 January) to 1952 (1 January) the value of fixed assets of kolkhozes increased by 114 percent.
- L. Anisimov states that by 1952 indivisible funds of kolkhozes had doubled and reached 43.5 billion rubles compared with 1940. 1 January is the inventory date for the value of assets in the preceding year. 212/
- u. 1952 (plan):
- F. Source 213/ states that 0.9 billion rubles in long-term credits were not utilized in 1952. Add this amount to actual long-term credits in 1952.

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Table 6
(Continued)

- v. 1952 (actual):
- B. G minus F.
 - F. Source 214/ states that the plan for long-term credits in 1953 of 3.5 billion rubles was an increase of 0.8 billion rubles over 1952.
 - G.. Zverev in this budget speech states that in 1955 kolkhoz monetary investments are planned to be 18 billion rubles as against 12.5 billion rubles in 1953 and 10.9 billion rubles in 1952. 215/ Zverev does not specify whether these monetary expenditures are inclusive of long-term credits, and in the ordinary usage previously prevailing long-term credits would not have been included. However, given total indivisible fund investments from 1951 to 1953, given monetary indivisible fund expenditures for 1951-52, and given kolkhoz monetary incomes for the years 1951 through 1953, Zverev's figures can be taken to be inclusive only of long-term credits. The unusually large plan figure for 1955, 18 billion rubles, should make the conclusion self-evident.
 - I. Anisimov and a Soviet periodical state that during 1951 and 1952 monetary incomes of kolkhozes rose by 23 percent. 216/
 - K. Anisimov and a Soviet periodical state that during 1951 and 1952 the value of fixed means of production of kolkhozes rose by 20.3 percent. 217/
 - L. Source 218/ states that from 1940 up to 1953 kolkhoz indivisible funds increased by 2.5 times. A statement of this kind is apt to contain some margin of error due to rounding, in addition to which error may accumulate from the margin of error in the estimated value of the indivisible funds in 1940. Allowing for these limitations, the figure for 1952 is interesting for the shifting ratio it indicates between indivisible funds and fixed assets. A hypothesis that suggests itself is that the indivisible funds are higher than fixed assets in value in 1952 on account of a considerable accumulation of unfinished construction and/or money unused and on the account for capital investments. Unfinished construction and money in the account for capital investments are counted in the valuation of the indivisible funds, whereas they are not in the valuation of fixed assets. It is known that in the years shortly before Stalin's death the state disapproved of the diversion of farm labor from basic production to construction tasks. 218/
- w. 1953 (plan):
- A. 219/
 - F. 220/
- x. 1953 (actual):
- A. In source 221/ it is stated that kolkhozes' own investments were in 1953 "about" 17 billion rubles. Since in the same sentence the author, Anisimov, refers to Fourth Five Year Plan investments of 41 billion rubles (that is, to what are known to be money plus labor investments only), presumably the 17 billion rubles would refer to the same coverage. But it can hardly have been possible for B-C to have been 17 billion rubles in 1953. Therefore, one must assume that the author has shifted context (to A?) or that some mistake has been made. If the former alternative is preferred -- since all of the in-kind components are very rough estimates -- then the statement may be correct. It is curious, however, if the plan for 1953 was fulfilled, that the USSR has not made more of it in the press. So far as is known, this is the only direct statement on indivisible fund plan fulfillment in 1953.
 - B. G minus F.
 - C. This is a questionable residual calculation. Given estimated C for 1951-52, subtract this from estimated C for 1951-53. See r, C, above.
 - D. Given estimated livestock investments in kind for 1951-53, allow a relatively larger share for 1953 on the grounds that livestock prices went up in 1953. This estimate is perhaps more unreliable than the one for labor investments in 1953.
 - F. An article states that long-term credits in 1954 are to be 4.1 billion rubles, which is 45.5 percent over 1953. 222/
 - G. See note v, G, above.
 - I. 223/
- y. 1954 (plan):
- F. Source 224/ states that the long-term credit plan for 1954 is 38.5 percent greater than 1953 actual.
- z. 1954 (actual):
- B. Source 225/ states that long-term credits in 1954 of 4.1 billion rubles amount to 25 percent of money capital expenditures of kolkhozes. Then total money expenditures are 16.5 billion rubles, and indivisible fund money expenditures are 12.4 billion rubles. This statement is obviously a forecast, but since it is being made so near the end of the year, it is assumed that it will more than likely be fulfilled.
 - F. 226/ See B, above.
- aa. 1955 (plan):
- B. G minus F.
 - F. 227/
 - G. See note v, G, above.

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APPENDIX C

FIXED ASSETS OF SOCIALIST AGRICULTURE IN THE USSR a/
1937-55

Table 7

Billion Current Rubles							
	A	B	C	D <u>b/</u>	E <u>c/</u>	F	G
	State					Kolkhoz <u>d/</u>	
	MTS					Fixed	Individual
Year	Total	Machine	Construction	Other	Total	Assets	Funds
1937 <u>e/</u>	5.6	4.6	1.0	(8.6) <u>f/</u>	(14.2)	17.1	
1939 <u>g/</u>	(7.2)	(5.9)	(1.3)	(10.0)	(17.2)	(22.9)	21.7
1940 <u>h/</u>	8.0	(6.6)	(1.4)	(10.2)	(18.2)	(26.3)	(24.2)
1945 <u>i/</u>	(7.0)			(8.9)	(15.9)		
1948						35.0	
1949							34.7
1950 <u>j/</u>	20.4				(37.3)	(43.5)	(38.5)
1951 <u>k/</u>					(47.8)	(48.8)	43.5
1952 <u>l/</u>	31.8	28.3	3.5	(25.5)	(57.3)	(52.3)	(54.3)
1953 <u>m/</u>					(65.7)		
1954 <u>n/</u>					(78.3)		
1955 <u>o/</u>			<u>14.0</u>				

a. All assets in terms of original balance values.

b. Includes sovkhoses and projects of general agricultural significance.

c. E equals A plus D.

d. All data in columns F and G taken from Table 6, p. 91, above.

e. 1937:

A. 228/

B. 229/

C. A minus B.

D. E minus A.

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Table 7
(Continued)

-
- E. It is given that fixed productive assets of socialist agriculture in 1937 were 30.6 billion rubles. 230/ Subtracting kolkhoz fixed assets for that year (17.1 billion rubles, presumably inclusive of nonproductive assets) from the 30.6 billion rubles leaves 13.5 billion rubles for the balance of state productive assets. Now, in the absence of any specific data, and in view of qualitative considerations concerning the relatively small share of nonproductive assets in state agriculture -- considerations discussed at length in sections I and II -- arbitrarily add 5 percent to total state productive assets to allow for nonproductive assets in the state sector.
- f. Figures in parentheses are estimates.
- g. 1939:
- A. Derived estimate based on straight-line interpolation between the terminal years 1937 and 1940. Rates of growth to the agricultural tractor park during these years were nearly constant. Since tractors are a large share of MTS assets, it is arbitrarily assumed that they illustrate growth to total MTS assets in these years.
 - B. Let the same ratio of total assets of machine tractor stations to MTS machinery that applied in 1937 apply in 1939.
 - C. A minus B.
 - D. From the data in Table 6, p. 91, above, it has been estimated that the percentage of kolkhoz investments over time which add net incremental value to kolkhoz fixed assets is generally under 40 percent. Since MTS and sovkhoses take upward of 90 percent of state investments in these prewar years, let a similar rate of investments to the incremental value of assets apply to all non-MTS state agricultural capital stocks. The rate of 40 percent is used here as a minimum, since some small share of nonfarm investments is being included. Now, state agricultural investments in 1938 were 3.4 billion rubles and those planned for 1939 were 1.59 billion rubles. See source 231/. It can be roughly calculated from the estimates on the incremental value to MTS fixed assets that 1.6 billion rubles were invested in MTS in 1938 and 1939 taken together. Assuming that the 1939 plan for state agricultural investments was fulfilled, that leaves 3.4 billion rubles for non-MTS state agricultural investments in those years. Add 40 percent of that amount to non-MTS state agricultural capital stocks in 1937.

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Table 7
(Continued)

-
- h. 1940:
- A. 232/
 - B. Let the same ratio of MTS machinery to total MTS fixed assets that applied in 1939 apply in 1940.
 - C. A minus B.
 - D. Planned state agricultural investments in 1940 were 1.23 billion rubles. 233/ From the estimates on the incremental value to MTS fixed assets it can be assumed that 0.6 billion rubles of the 1.23 billion rubles went to MTS investment. Assuming that the plan was fulfilled, 0.61 billion rubles were left for non-MTS state agricultural investments. For reasons set out in g, D, above, add 40 percent of that amount to non-MTS state agricultural capital stocks in 1939.
- i. 1945:
- A. From Table 5 it is estimated that total MTS investments from 1946 through 1952 were 26.1 billion rubles, and in section II of this report it was explained that very nearly all investments in MTS become net increments to fixed assets. Assume that 95 percent of investments in 1946-52 became increments to fixed assets; this yields fixed assets in 1945 as roughly 7 billion rubles, a fantastically low decline of 1.0 billion rubles being accountable for in war losses. For Soviet methods of valuing war losses, see section II of this report.
 - D. E minus A.
 - E. Although it does not appear to be inconsistent with the general growth trends estimated for machine tractor stations and even for kolkhoz assets, this is perhaps the least firm estimate in the table. Employing an enormous assumption, the method for calculating this estimate is, in the absence of data, to suppose that the same ratio of total state agricultural capital stocks to total MTS capital stocks that applied in 1940 also applies in 1945.
- j. 1950:
- A. According to source 234/, by 1951, fixed means of MTS production had increased in relation to 1940 by 155 percent.

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Table 7
(Continued)

-
- E. The estimates for total state assets in 1952 resulted in 70 percent of total state investments over the period 1946-52 being considered additions to state agricultural assets as of 1945. Let the same consideration apply for investments made in 1946-50 and add this amount to the estimate for state assets in 1945. The time span is still sufficiently large that the 1946-52 average probably still applies.
- k. 1951:
- E. The estimates for total state assets in 1952 resulted in 70 percent of total state investments over the period 1946-52 becoming net incremental value to state agricultural assets as of 1945. Let the same percentage apply for investments made in 1946-51 and add this amount to the estimate for state assets in 1945.
- l. 1952:
- A. Source 235/ states that at the beginning of 1953 the value of MTS construction assets comprised only 11 percent of the fixed capital of machine tractor stations. It is further stated that as a result of the MTS construction program planned for 1954-56 the value of construction assets will be four times greater than in 1952. From the data in Table 5, p. 85, above, it is known that the planned MTS construction outlays for 1954-56 are 10.5 billion rubles. Therefore, MTS fixed assets in construction in 1952 and those planned for 1956 can be derived, and so also can total MTS fixed assets in 1952. These construction estimates, of course, do not allow for assets of this type passing out of existence; but over the short time involved, dearth of the construction assets is a negligible factor.
- B. A minus C.
- C. See A, above.
- D. Several assumptions go into this basic estimate. The first is that approximately the same relationship of total state agricultural investments to MTS investments has existed in both the prewar and the postwar periods (see section III of this report). Despite a continuation of the prewar investment pattern, however, it is assumed that the relative weights of assets in the categories were altered in the postwar period. The reason for the change is that almost all (estimated to be 95 percent for the short time span

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Table 7
(Continued)

-
- involved) MTS investments became net increments to existing assets. Next it is further assumed, in order to make a minimum estimate, that over the period 1946-52 approximately 10 percent (roughly 6 billion rubles) of state investments were allocated to projects of general agricultural significance. And since MTS investments over the same period were 41 percent (or 26.1 billion rubles) of total state investments, that leaves roughly 49 percent (or 27.1 billion rubles) of state investments from 1946-52 for sovkhozes. Let, as for MTS, 95 percent of supposed investments in projects of general agricultural significance become net increments to assets estimated for 1945, and for sovkhozes let the net increment be 40 percent. Add the sum of the respective increments to D in 1945. The net result is that about 70 percent of state agricultural investments, 1946-52, became net increments to state agricultural fixed assets.
- E. A plus D.
 - m. 1953:
 - E. The estimate for total state agricultural assets in 1952 resulted in 70 percent of total state investments over the period 1946-52 becoming net incremental value to state agricultural assets. Let the same percentage apply for investments estimated from 1946-53 and add this amount to the estimate for state assets in 1945.
 - n. 1954:
 - E. The estimate for total state agricultural assets in 1952 resulted in 70 percent of total state investments over the period 1946-52 becoming net incremental value to state agricultural assets. Let the same percentage apply for investments estimated for 1946-54, and add this amount to the estimate for state assets in 1945.
 - o. 1956 (plan):
 - C. See 1, A, above.

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APPENDIX D

BIBLIOGRAPHY1. Books and Non-Russian Periodical Articles.

The sources listed below are significant in this report largely for information relating to investment definitions and financial and accounting procedures in the administration of Soviet agricultural investment funds. The materials are by no means all of an even quality. For the more solid contributions the reader is urged to consult the following authors and/or works: Kaplan, Maletin, Nove (The National Income of the USSR), Rovinskiy, Shkarednyy, Slovar'-spravochnik po sotsial'no-ekonomicheskoy statistike, and Sofiyev and Krasnov.

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